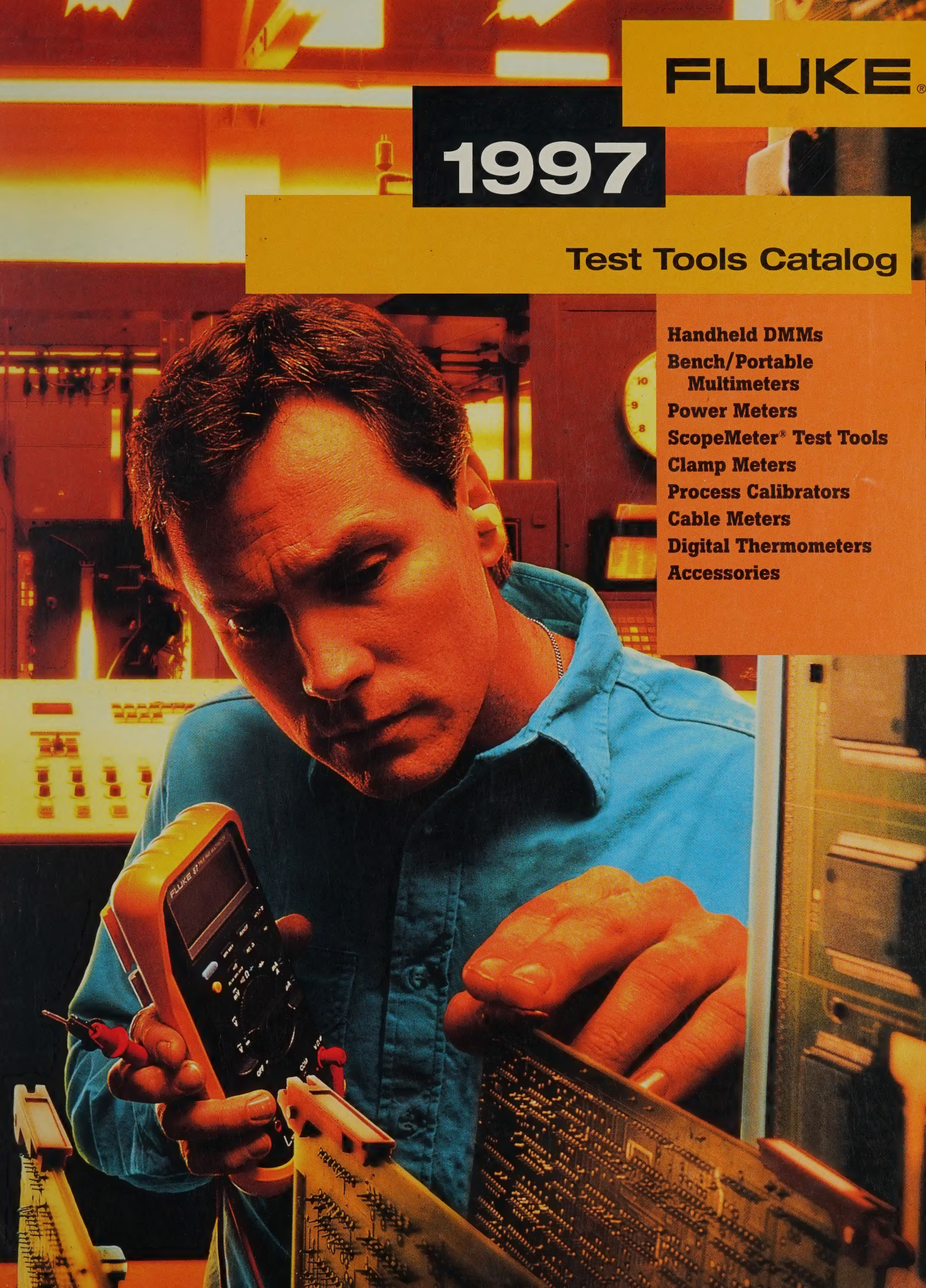
FLUKE®

1997

Test Tools Catalog

- Handheld DMMs
- Bench/Portable Multimeters
- Power Meters
- ScopeMeter® Test Tools
- Clamp Meters
- Process Calibrators
- Cable Meters
- Digital Thermometers
- Accessories



FLUKE®

Keeping Your World Up and Running.

As a professional, you probably have heard about Fluke tools - quite possibly, you have worked with them first hand. Since 1948, Fluke has been making test tools that are uniquely useful to people like you: tools that expand what you can achieve; tools that are tough; tools you can stake your reputation on. These are tools that help keep you up and running, day in and day out, wherever your work takes you.

The company's founder, John Fluke Sr., wanted to make products that were rugged, reliable, accurate and safe to use. And that is what the Fluke Corporation has done, from the company's first product – a unique and innovative power meter – to today's highly sophisticated test tools, some of which can provide readouts in five different languages.

Fluke Corporation is an international business, providing electronic test tools to customers throughout the world. Product development, engineering and manufacturing take place in both the U.S. and Europe, and our products are sold and serviced in more than 80 countries around the world.

No matter where you do business with Fluke, we are always ready to make your job more productive, your work faster, and your professional powers and abilities more valuable.

That is your Fluke advantage.

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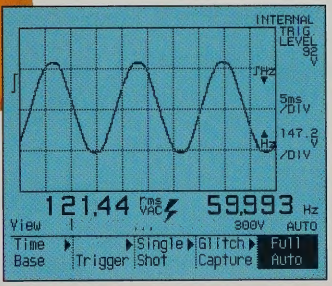
CE "Note: Effective January 1, 1996, Fluke products sold and shipped into the European Union will comply with the applicable European Commission directives. These products will have the appropriate Declaration of Conformity and will be appropriately marked with the CE symbol."

New from Fluke

A Bright New Look for Graphical Multimeters

Model 867B GMM™

Thanks to a new backlight technology, the world's most accurate, handheld DMM is now also the brightest. When measurements demand high precision and accuracy, Fluke graphical multimeters deliver. And now the 867B has a brighter, high-contrast display. With a large LCD display, GMM™ meters provide a wealth of information, quickly, without a lot of page-turning or button-pushing. And, they cover most troubleshooting and measurement requirements, performing roles that used to be filled by several specialized instruments.



- **New! Bright, high-contrast backlight.**
- **0.025% Basic dc Accuracy** with current measurements down to 10 nA make the GMM the most accurate handheld meter you can buy.
- **New! SC860 Software/Cable Kit provides a communication link** with PCs, for documentation, analysis and storage. Optically isolated RS-232 interface for printing and transferring measurement data.

See page 16

Did You Know?

Fluke produces over 200 main products, along with some 1,300 accessories and options. Besides the product categories shown in this catalog, Fluke sells:

- Oscilloscopes
- Counters and Timer/Counters
- Calibration Equipment and Software
- Signal Sources
- Documenting Process Calibrators
- TV Pattern Generators
- Network Diagnostic Equipment
- Data Acquisition Equipment
- Bench/System Multimeters
- Automotive Test Tools
- RCL Meters
- Power Supplies

See inside back cover for other available Fluke catalogs
Visit us on the world wide web at:
http://www.fluke.com

Get a Grip!

Fluke 36 True-rms Clamp Meter

The Fluke Model 36 is a rugged, reliable clamp meter that measures ac and dc current and volts. This versatile clamp meter offers true-rms sensing and MAX Hold for measuring inrush current or maximum load on a circuit.

- Easy, single-handed operation
- Easy-view 2000 count digital display
- Continuity beeper
- Sleep mode extends battery

See page 25

New from Fluke

The 100 MHz Scope for On-The-Go Measurements

Fluke ScopeMeter® 90B Series

The ScopeMeter® test tool is the best scope for rugged, on-the-go applications. Whether you're up a pole or in the middle of nowhere, you can count on its 100 MHz bandwidth, 5 GigaSamples/second sampling, and deep 30k memory to get the job done right. ScopeMeter B integrates a powerful dual-channel digital scope with a full-featured 5 MHz DMM in a rugged battery-powered, handheld instrument. And its new, bright, high-contrast screen rivals bench scope displays for easy readability wherever you work.

- Full video triggering including NTSC, PAL, SECAM and Hi resolution
- TrendPlot™ meter logging now has time and date stamp
- Four models to choose from

See page 22

VoltAlert™ 1AC

VoltAlert™ 1AC is the new pocket-sized ac line voltage detector from Fluke. Easy to use — just touch the tip to an outlet or cord. When it glows red, you know there's voltage in the line. Electricians, maintenance, service, and safety personnel can quickly test for energized circuits and defective grounds on the factory floor, in the shop, or at home.

- Fits in shirt pocket for convenience
- All outer surfaces are non-conductive for safety
- Detects voltage without metallic contact
- Manufactured, printed and packaged in the US

Operating range: 90-600 volts ac*
Batteries: Two AAA Alkaline
**US and North American. Other models available.*
One Year Warranty

CAT III-600V
ANSI/ISA -S82.01-94
IEC-1010-1, 1990
IEC-1010-2
UL Listing and TUV approval pending to UL 3111 and EN61010-1.

C22.2 # 1010

Turn Your DMM into a Fiber Optic Meter

Fluke's Affordable Solution to Testing Fiber Optic Cable

The Fluke Fiber Optic Meter (FOM) helps you test and maintain fiber optic cable without having to buy a whole new meter.

- Plug the new Fluke FOM accessory directly into your favorite Fluke DMM — or any other digital multimeter with an mV dc function and 10 MΩ input impedance.
- A complete line of optional light sourced and patch cords for every fiber optic testing need — from design to installation and field service.

See page 27

Start testing Fiber Optic today!

Economical, Easy-to-Use DMM

Model 12B Multimeter

The Fluke 12B has the same great functionality as our popular Model 12, now with an easy-to-use rotary dial. The Model 12B adds these new capabilities:

- Millivolt readings for compatibility with temperature and other accessories
- High resistance ranges to 40 MΩ
- 5 ranges of capacitance
- Continuity Capture™ locates intermittent opens as brief as 250 µs and identifies them in a symbolic display as short-to-open or open-to-short
- Min/Max recording with relative time stamp records the highest and lowest voltage readings during a 100 hour period
- Sleep mode preserves battery life

See page 6

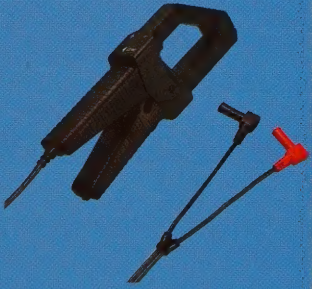
New Current Clamps

80i-410 Clamp-on AC/DC Current Probe

Battery-powered Hall-effect clamp-on probe measures ac or dc current from 5A to 400A

80i-1010 Clamp-on AC/DC Current Probe

Battery-powered Hall-effect clamp-on probe. Measures ac current from 1A to 700A, dc current from 1A to 1000A.



See page 37

Put Basic Electrical Tests on Automatic

7 Series Electrical Testers

The new Fluke 7 Series testers are designed for safe, automatic measurements. Simply turn on and use:

- Automatic readings of volts ac or dc (300V in 7-300)
  (600V in 7-600)
- 400 ohm range and continuity beeper
- TL 75 test leads included

Here's how it works. If there's less than 4.5V present, the meter measures Ohms/Continuity. If more then 4.5V are present, the meter automatically switches to measuring ac or dc volts, whichever is greater.

It's simple, it's economical. And most of all, it's from Fluke — built to last and engineered for safety.

See page 7

FLUKE ®

Handheld DMMs Selection Guide

Choosing your DMM

Fluke's handheld digital multimeters lead the industry in features, accuracy, and value for the price. Many Fluke handhelds rival the performance of more expensive bench models. Others have features that make them uniquely suited for particular applications or industries.

Before buying a DMM, consider not only its basic specifications, but the features, functions, applications, and overall value represented by the meter's design. Fluke offers many DMMs with different combinations of features. The charts opposite summarize the most important features and functions to consider when selecting a handheld DMM.

7 Series

Offers first-level electrical troubleshooting. The compact design and slide switch offer one-handed operation.

10 Series

Ideal for first level electrical and electronic troubleshooting: Digital-only readout for measurements up to 600 volts; does not measure current.

70 Series II

For measurements in protected circuits which do not exceed 4800 VA, provides more measurement features and better accuracy than the 10 Series. The Models 76 and 79 offer significant additional features with little added cost.

20 Series II (Models 21, 23, 29)

Intended for industrial applications, the bright yellow 20 Series II matches the 70 Series one-for-one in basic features, specifications, and functions.

20 Series (Models 25, 27)

With extra shielding and a water/chemical/temperature resistant case, the Models 25 and 27 are designed for rugged use in harsh, industrial or marine environments.

Models 8060A and 8062A

Fluke's finest microcomputer-based handheld DMMs offer high accuracy, true-rms ac, frequency measurement and dBm readout.

80 Series

Greater versatility and unique safety features for industrial and electronic applications, including frequency, duty cycle and capacitance measurements.

860 Series

Large, graphical display gives multiple readings, trends, waveforms, and component V-I curves. Accuracy rivals system meters. RS-232 interface for PC or printer connection.

Handheld DMMs Selection Guide

Basic Features	7-300 7-600	12B 10 Series			70 Series II						20 Series					8060A	8062A	80 Series			860 Series	
		10	11	12	70	73	75	76	77	79	21	23	25	27	29			83	85	87	863	867B
32 000 Counts																					●	●
20 000 Counts																●	●					
Selectable 20 000 Counts																				●		
4000 Counts	●	●	●	●				●		●					●			●	●	●		
3200 Counts					●	●	●		●		●	●	●	●								
Auto & Manual Ranging	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●
Special Features																						
Waveform Display																					●	●
Analog Bar Graph					●	●	●	●	●	●	●	●	●	●	●			●	●			
Analog Pointer																				●	●	●
Frequency Measurement								●		●					●	●		●	●	●	●	●
Duty Cycle																		●	●	●	●	●
dB, dBm Readout																●					●	●
Offset/Relative Reference														●		●	●	●	●	●	●	●
Lo-Ohms Zero Calibration subtracts test lead resistance								●		●					●							
Continuity & Beeper	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Continuity Capture Mode				●																		
Automatic Touch Hold®					●	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●
Min/Max Hold				●										●				●	●	●	●	●
Average to 36 Hours																		●	●	●	●	●
Peak Hold																				●	●	●
Sealed Case, Water/Chemical Resistant													●	●								
Splash & Dust Proof													●	●				●	●	●	●	●
Fused 10A Range						●	●	●	●	●	●	●	●	●	●			●	●	●	●	●
Capacitance			●	●				●		●					●			●	●	●	●	●
True-RMS (AC Volts)								●								●	●			●	●	●
Diode Test		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Conductance													●	●		●		●	●	●	●	●
RS-232 Interface																					●	●
Functions																						
DC VOLTS																						
(Max. dc voltage w/out probe 1000V all DMMs, except Series 10 - 600V)																						
Basic Accuracy, %	1.5	1.5	.9	.9	.5	.4	.4	.3	.3	.3	.4	.3	0.1	0.1	.3	.04	.05	.3	0.1	0.1	.04	.025
Maximum Resolution, µV	1k	1k	1k	1k	100	100	100	10	100	10	100	100	100	100	10	10	10	100	100	10	10	10
AC VOLTS																						
Max. AC Voltage w/o Probe (RMS)	300	600	600	600	750	750	750	600	750	750	750	750	1000	1000	750	750	750	1000	1000	1000	1000	1000
Basic Accuracy, %	2.9	2.9	1.9	1.9	2.0	2.0	2.0	1.5	2.0	1.0	2.0	2.0	.5	.5	1.0	.2	.5	1.0	.5	.7	.5	.5
Maximum Resolution, µV	1k	1k	1k	1k	1k	1k	1k	10	1k	100	1k	1k	100	100	100	10	10	100	100	10	10	10
Frequency Range, Hz	400	400	400	400	1k	1k	1k	1k	1k	1k	1k	1k	30k	30k	1k	100k	30k	5k	20k	20k	300k	300k
AC & DC AMPS																						
Maximum Resolution, µA						10k	10	1.0	10	1.0	10	10	.1	.1	1.0	.01	.01	0.1	0.1	0.01	1.0	.01
Maximum Amps w/o Probe (RMS)						10A	10A	10A	10A	10A	10A	10A	10A	10A	10A	2A	2A	10A	10A	10A	10A	10A
OHMS																						
Maximum Resolution, mΩ	100	100	100	100	100	100	100	10	100	10	100	100	100	100	10	10	10	100	100	10	10	10
Maximum Resistance, MΩ	400	40	40	40	32	32	32	40	32	40	32	32	32	32	40	300	300	40	40	40	30	30

Fluke: Where Safety is Built In

FLUKE ®

Fluke is Committed to Meeting the Highest Applicable Safety Standards and to Independent Testing and Certification of Our Products.

New International Safety Standards for Digital Multimeters

The increased occurrence and levels of transient *overvoltages* in today's power systems have given rise to more stringent safety standards for electrical measurement equipment. Transients that ride on top of power sources (mains, feeder or branch circuits) can trigger a sequence of events that may lead to serious injury. Test equipment must be designed to protect people working in this high-voltage, high-current environment.

Who Develops Safety Standards?

The IEC (International Electrotechnical Commission) develops international general standards for safety of electrical equipment for measurement, control and laboratory use. In 1988, IEC replaced an older standard, IEC-348, with a more stringent standard, IEC-1010-1. IEC-1010-1 is used as the basis for the following national standards:

- US ANSI/ISA-S82.01-94
- Canada CAN C22.2 No.1010.1-92
- Europe EN61010-1:1993

What's Different about IEC-1010-1 Compared to IEC 348?

IEC-1010-1 specifies categories of overvoltage based on the distance from the power source (see Fig. 1) and the natural damping of transient energy that occurs in an electrical distribution system. Higher categories are closer to the power source and require more protection.

- Category IV, called the primary supply level, refers to the overhead or underground utility service to an installation and is presently beyond the scope of IEC-1010-1.
- Category III, called the distribution level, refers to mains voltage feeder or branch circuits. CAT III circuits are typically separated from the utility service by at least a single level of transformer isolation. The equipment consists of fixed installations. This is the main category of concern to users of Fluke meters.
- Category II refers to the local level, to appliances, portable equipment, etc. Category I refers to the signal level, to telecommunication, electronic equipment, etc.

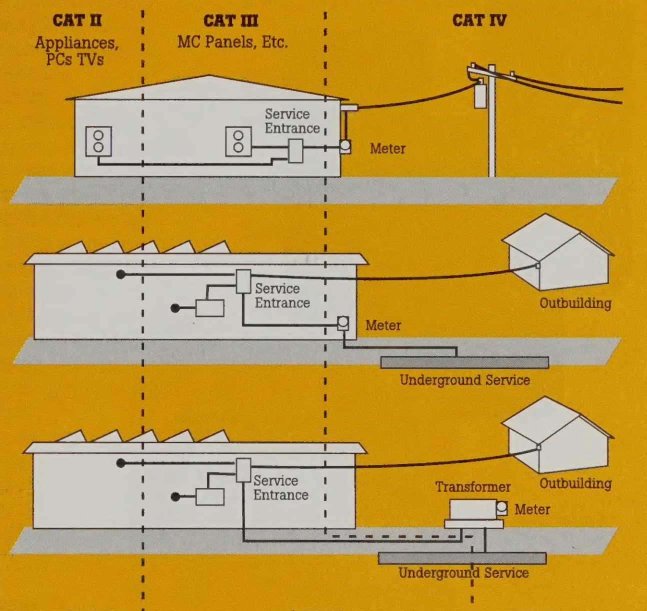
Categories I to IV are overvoltage *installation* categories; they are defined by the location of the equipment to be tested. Within each installation category there are *voltage* classifications. It is the combination of installation category and voltage classification which determines the maximum transient withstand capability of the instrument.

Instruments are tested as follows:

CAT II	600 V	4000 V peak impulse transient	12 Ohm source
CAT II	1000 V	6000 V peak impulse transient	12 Ohm source
CAT III	600 V	6000 V peak impulse transient	2 Ohm source
CAT III	1000 V	8000 V peak impulse transient	2 Ohm source

What Changes are Required in Instrument Design to Meet IEC-1010-1 Standards?

One of the main differences concerns spacing requirements inside the instrument. Spacing is referred to in terms of "creepage" distance (along surfaces) and "clearance" distance (through the air). IEC-1010-1 increases the spacing requirements for a given maximum overvoltage. Larger clearance distances enable the meter to withstand higher overvoltage transients.



CAT II
- Outlets and long branch circuits
- All outlets at more than 10m (30 ft.) from Category III
- All outlets at more than 20m (60 ft.) from Category IV

CAT III
- Feeders and short branch circuits
- Distribution panel devices
- Heavy appliance outlets with "short" connections to service entrance
- Lighting systems in large buildings

CAT IV
- Outside and service entrance
- Service drop from pole to building
- Run between meter and panel
- Overhead line to detached building
- Underground line to well pump

Demarcation between Location Categories III and IV is arbitrarily taken to be at the meter or at the main disconnect (ANSI/NFPA 70-1990 [2], Article 230-70) for low-voltage service, or at the secondary of the service transformer if the service is provided to the user at a higher voltage.

For more information, see ISA-S582.01-1994, Annnex J Source: ANSI/IEEE C62.41-1991

ANSI/ISA S82.01-1994

What Does it Mean to be UL-listed, CSA-Certified, TUV or VDE-Certified?

Underwriters Laboratories (UL), Canadian Standards Association (CSA), TUV and VDE (German standards organizations) are approval/listing agencies. They are independent testing laboratories that test products against national/international standards or their own standards which are based on national/international standards. UL3111, CSA C22.2 No. 1010-1-92 and EN61010, for example, are based on IEC-1010-1. To be UL-listed, CSA-certified or TUV or VDE-certified, the manufacturer must employ the services of the approval/listing agency to actually test the product's conformity to the agency's standard. This can be a lengthy and costly process. Only upon successful completion of this independent testing by the listing agency may the manufacturer display the mark of the agency on the product.

Visit us on the world wide web at:
http://www.fluke.com

10 Series Multimeters

Fluke's Low-Cost Family of Meters, Ideal for First-Level Electrical and Electronic Troubleshooting

CAT III-600V

Accessories and Ordering Information

Included Accessories
Each model includes safety-designed TL75 test leads, 9V battery (installed) and operator's manual.

Optional Accessories
See Accessories Compatibility Guide on pages 44-46.

Ordering Information
Fluke 10 Multimeter
Fluke 11 Multimeter
Fluke 12 Multimeter
Fluke 12B Multimeter

Visit us on the world wide web at:
http://www.fluke.com

The three 10 Series models are designed to support first level electrical and electronic troubleshooting. Their compact design, slide-switch and pushbutton controls allow true one-hand operation. The 12B has the same great functionality as our model 12, now with an easy-to-use rotary dial

- 4000 Count digital display
- Fast continuity beeper, diode test
- V Chek™ (11, 12 and 12B only): simplifies safe power source and supply measurement. When measuring ohms/continuity with more than 4.5 volts present across the input jacks (intentional or not), the meter automatically switches to measuring ac or dc volts, whichever is greater. Input impedance is approximately 2 kΩ, helping determine if voltage is from leakage or a hard connection. Overload protection is provided if the circuit is checked in ohms mode.
- Capacitance, 1000 to 9999µF (11, 12 and 12B only)
- Continuity Capture™ (12 and 12B only): locates intermittent opens and shorts as brief as 250µs, and identifies them in a symbolic display
- Min/Max recording with relative time clock, records highest and lowest voltage readings during a 100-hour period (12 and 12B only)
- Sleep Mode to preserve battery life

Safety Conformance

The Fluke 10, 11, 12 and 12B have been independently tested and approved for Protection Class II requirement of UL1244, ANSI/ISA-S82, CSA C22.2 No. 1010-1-1992, and VDE 0411.

Features

	Model 10	Model 11	Model 12/12B
4000 Count Digital Display	●	●	●
Basic DC Volts Accuracy	1.5%	0.9%	0.9%
Basic AC Volts Accuracy	2.9%	1.9%	1.9%
Basic Ohms Accuracy	1.5%	0.9%	0.9%
V Chek™		●	●
Capacitance		1.000 µF- 10 000 µF	1.000 µF- 10 000 µF
Min/Max Record w/Relative Time Clock			●
Continuity Capture™			●
Diode Test	●	●	●
Fast Continuity Beeper	●	●	●
Sleep Mode	●	●	●

Specifications

Function	Range	Best Accuracy			Resolution
		Model 10	Model 11	Model 12-12B	
VDC	4.000V -600V	±(1.5% + 1)	±(0.9% + 1)	±(0.9% + 1)	1 mV
VAC	4.000V -600V	±(2.9% + 3)	±(1.9% + 3)	±(1.9% + 3)	1 mV
Resistance	400Ω - 40 MΩ	±(1.5% + 1)	±(0.9% + 1)	±(0.9% + 1)	0.1Ω
Capacitance	1.000 µF - 10 000 µF	N/A	±(1.9% + 2)	±(1.9% + 2)	0.001 µF

Battery Life: Alkaline, 650 hours continuous
Carbon-zinc, 450 hours continuous
Size: 142.3 mm L x 70.5 mm W x 34.6 mm D
(5.55" L x 2.75" W x 1.35" D)
Weight: 286 g (10 oz)
Two Year Warranty: One year guaranteed calibration

FLUKE®

7 Series Electrical Testers

Economical, Easy-to-Use Testers; Ideal for Basic Electrical Testing

CAT III-300V

CAT III-600V

New

The economical 7 series is ideal for first-level electrical troubleshooting. The compact design and slide switch offer one-handed operation.

- 4000 count digital display
- Auto Selection simplifies voltage measurements in power environments. When measuring ohms/continuity with more than 4.5 volts present across the input jacks (intentional or not) the meter automatically switches to measuring ac or dc volts, whichever is greater. Input impedance is approximately 2 kΩ, helping determine if voltage is from leakage (so-called "ghost" voltages) or a hard connection. Overload protection is provided in all measurement modes.
- Automatic readings of volts ac
  (300V in 7-300)
  (600V in 7-600)
- Automatic readings of volts dc
  (300V in 7-300)
  (600V in 7-600)
- 400 Ohm Range/Continuity beeper
- TL75 Test Leads included with meter
- High visibility yellow plastic housing makes it easy to locate on the job or in your toolbox
- Simply turn on and use

Safety Conformance

The 7-300 and 7-600 have been tested and approved for Protection Class II requirement of UL1244, ANSI/ISA-S82, CSA C22.2 No. 1010-1-1992, and VDE 0411.

Specifications

Function	Range and Resolution	Best Accuracy
DC Volts	40.00V, 400.0V*, 600V*	±(1.5% + 1)
AC Volts	40.00V, 400.0V*, 600V*	±(2.9% + 3)
Ohms	400.0Ω	±(1.5% +2)

*Maximum reading of 300 volts on 7-300

Battery Life: Alkaline, 650 hours continuous, sleep mode

Size (Without Holster): 142.3 mm L x 70.5 mm W x 34.6 mm D (5.55" L x 2.75" W x 1.35" D)

Weight: 286 gm (10 oz)

Two Year Warranty

Accessories and Ordering Information

Included Accessories

The Fluke 7 Series comes equipped with TL75 Hard Point (Test Leads, a 9 volt battery (installed) and owner's manual.

Ordering Information

Fluke 7-300 Electrical Tester
Fluke 7-600 Electrical Tester

Visit us on the world wide web at:
http://www.fluke.com

FLUKE®

70 Series II Analog/Digital Multimeters

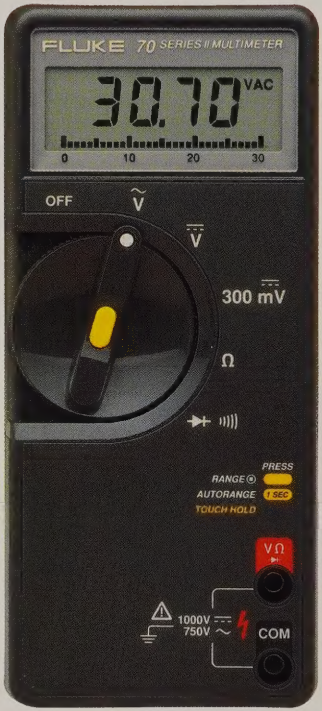
The Overall Industry Leader for Flexibility, Economy, and Wide Range Performance in Handheld DMMs

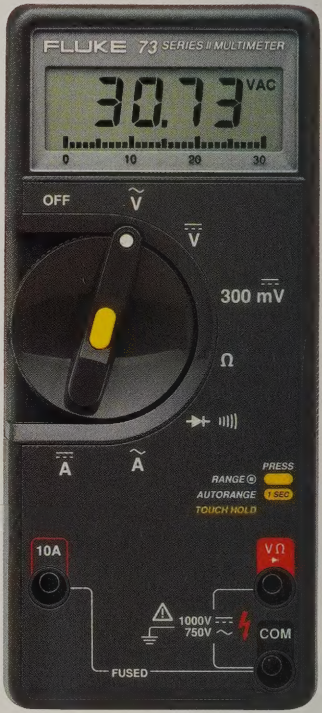
Few handheld DMMs can match the Fluke 70 Series II for versatility and flexibility in a wide variety of applications. Suitable for measurements in protected circuits, which do not exceed 4800 VA, the 70 Series provides a wealth of automatic features, measurement capabilities, and accuracy ranges. For the top-of-the-line model 79, see page 11.

- 31-Segment analog bar graph, allowing greater flexibility than traditional 3.5 digit DMMs
- Automatic Touch Hold® captures stable readings
- Single pushbutton and rotary dial to select all functions
- Auto and manual ranging and automatic polarity selection
- Diode test/audible continuity beeper enables fast continuity checks and audible notification of voltage drops of less than 0.7 volts
- Sleep Mode to preserve battery life
- All inputs protected (including 10A)
- Holster/Flex-Stand™ (Fluke 77 only)

Safety Conformance

All ranges for 70 Series Multimeters are protected against overloads: voltages to 1000V dc and 750V ac; resistance to 500V. All meters have been tested and approved for UL 1244 and VDE listing.





Model 79 and Model 29 Series II DMMs (see page 11)

Fluke's 20 Series II DMMs are the industrial counterparts to our 70 Series. Technically, they are members of the '70 Family'. This is why the high performance Fluke 29 and Fluke 79 are paired together on page 11. Identical in their specifications, features and functions, the Models 29 and 79 differ in the color: bright yellow and high energy circuit rating for the Model 29, reflecting its intented use in industrial electrical applications; grey case for the Model 79, showing its intended use in low energy electronic applications.

Features

	70	73	75	77
Digital Display/Counts	3200	3200	3200	3200
Analog Bar Graph/Segments	31	31	31	31
Measures AC/DC Voltage	●	●	●	●
Measures AC/DC Current		●	●	●
Measures Ohms	●	●	●	●
Diode Test/Fast Continuity Beeper	●	●	●	●
Auto and Manual Ranging	●	●	●	●
Automatic TouchHold®	●	●	●	●
Sleep Mode	●	●	●	●

70 Series II Analog/Digital Multimeters

LISTED

Limited Lifetime Warranty!
Keep your Fluke meter up and running
For 20, 70 & 80 Series DMMs Only

Accessories and Ordering Information

Included Accessories
All 70 Series II MultiMeters are packaged with a pair of safety-designed TL75 right-angle test leads, operator's manual, and installed 9V battery. The Fluke 77 comes with a C70Y Yellow Holster with Flex-Stand™.

Optional Accessories
See Accessories Compatibility Guide on pages 44-46.
(For Specifications and Ordering Information for the Model 79, see page 11)

Ordering Information
Fluke 70-2 Multimeter
Fluke 73-2 Multimeter
Fluke 75-2 Multimeter
Fluke 77-2 Multimeter

Visit us on the world wide web at:
http://www.fluke.com

Specifications

Function	Range	Best Accuracy				Resolution
		70	73	75	77	
VDC	320 mV -1000V	±(0.5% + 1)	±(0.4% + 1)	±(0.4% + 1)	±(0.3% + 1)	0.1 mV
VAC	3.2V -750V	±(2% + 2)	±(2% + 2)	±(2% + 2)	±(2% + 2)	1.0 mV
ADC	32 mA (75 & 77) 10A* (All except 70)	N/A	±(1.5% + 2)	±(1.5% + 2)	±(1.5% + 2)	0.01 mA (75 & 77) 10 mA (73)
AAC	32 mA (75 & 77) 10A* (All except 70)	N/A	±(2.5% + 2)	±(2.5% + 2)	±(2.5% + 2)	0.01 mA (75 & 77) 10 mA (73)
Resistance	320Ω - 32 MΩ	±(0.5% + 1)	±(0.5% + 1)	±(0.5% + 1)	±(0.5% + 1)	0.1Ω

*10A continuous, 20A for up to 30 seconds

Battery Life: 2000 hours typical for Models 70, 73, 75, and 77
Size (Without Holster): 166 mm L x 75 mm W x 28 mm D
(6.55" L x 2.95" W x 1.12" D)
Weight: 0.34 kg (12 oz)
Lifetime Warranty

FLUKE ®

Fluke 76 and 29/79 Series Analog/Digital Multimeters

Advanced Measurement Capability, High Performance Features, and True-rms With Little Added Cost

Packed with comprehensive features and faster ranges, the Fluke 76/29/79 place state-of-the-art performance within the grasp of users who need greater accuracy and multiple functions. All three meters come equipped with Fluke's Flex-Stand™ holster for easy setup in nearly any location and convenient test lead storage.

The Fluke 76 is the affordable answer to measuring non-linear loads. Combining true-rms performance with the advanced features of the Fluke 79 (grey) and 29 (yellow), the model 76 expands Fluke's professional line of compact handhelds.

- Capacitance ranges from 99.99 nF to 9999µF
- Built-in frequency counter of voltage input from 1 Hz to over 20 kHz
- Lo-Ohms range, a 40Ω range with Fluke's proprietary Zero Calibration, offers 0.01 resolution with increased noise rejection
- Fast, 63-segment analog bar graph and 4000-count digital display - as fast as the eye can see
- Smoothing™ for stable readings of a varying signal, displays a running average of 8 normal inputs
- Other features include 10A, 4 mA, 40 mA, TouchHold®, Audible Continuity/Diode Test, Autorange/Range Hold, and 500-700 hours of battery life, depending on the model selected

Safety Conformance

Model 29: All inputs are protected from high energy overloads, including a fused 10 amp range. All voltage inputs are protected to recover or fail safe from power line surges from major feeders, as defined in IEEE-587-1980, Category B, which includes simulated lightning and load switching transient pulses up to 6 kV superimposed on 660 V power lines.

Model 79: All ranges are protected against overloads: voltages to 1000V dc, 750V ac; resistance to 500 V. All current inputs are protected with high energy fuses - including the 10 amp range.

Model 76: Complies with IEC-1010-1, 1990-09 and ANSI/ISA-S82.01-94, for use in overvoltage Category III locations. Use it to make ac or dc voltage measurements on electrical distribution systems where transients do not exceed 6 kV. The model 76 is independently tested and approved for UL3111, CSA C22.2 No. 1010-1-1992, and TUV to EN61010 listing. The Model 29 and Model 79 are approved for UL1244, CSA C22.2 No. 231, and TUV to EN61010 listing.

LISTED UL

TÜV PRODUCT SERVICE GS

CAT III-600V

True-rms

Features

	76	29	79
True-rms	●		
Digital Display Counts	4000	4000	4000
Analog Bar Graph/Segments	63	63	63
Measures AC/DC Voltage	●	●	●
Measures AC/DC Current	●	●	●
Measures Ohms/Lo Ohms	●	●	●
Measures Frequency/Capacity	●	●	●
Diode Test/Fast Continuity Beeper	●	●	●
Auto and Manual Ranger	●	●	●
Automatic TouchHold®	●	●	●
Sleep Mode	●	●	●
Smoothing	●	●	●
High Energy Overload Protection	●	●	

Fluke 76 and 29/79 Series Analog/Digital Multimeters

LISTED

Limited Lifetime Warranty!
Keep your Fluke meter up and running
For 20, 70 & 80 Series DMMs Only

Accessories and Ordering Information

Included Accessories
Hard Point™ TL75 right-angle test leads, 9V battery (installed), operator's manual, yellow C70Y holster with Flex-Stand.

Optional Accessories
See accessories Compatibility Guide on pages 44-46.

Ordering Information
Fluke 76 True-rms Multimeter with holster
Fluke 29-2 Multimeter with holster
Fluke 79-2 Multimeter with holster

Visit us on the world wide web at:
http://www.fluke.com

Specifications 76 and 29/79 Series DMMs

Function	Range	Best Accuracy		Resolution
		76	29/79	
VDC	40.0 mV - 1000 V*	±(0.3% + 1)	±(0.3% + 1)	0.01 mV
VAC	400.0 mV - 750 V (29/79) 400.0 mV - 600 V (76)	±(1.5% + 2)	±(1.0% + 2)	0.1 mV
ADC	4 mA - 10A**	±(0.5% + 2)	±(0.5% + 2)	0.001 mA
AAC	4 mA - 10A** AC Conversion (76): AC Coupled, true-rms responding from 5% to 100% of range	±(1.5% + 2)	±(1.5% + 2)	0.001 mA
Resistance	400Ω- 40 MΩ	±(0.4% + 1)	±(0.4% + 1)	0.1Ω
Lo Ohms	40 and 400Ω	5% Typical	5% Typical	0.01Ω
Capacitance	99.99 nF - 9,999 µF	±(1.9% + 2)	±(1.9% + 2)	0.01 nF to 0.1 µF
Frequency (of voltage input)	99.99 Hz - 20.00 kHz	±(0.01% + 1) 1 Hz to 20 kHz	±(0.01% + 1) 1 Hz to 20 kHz	0.01 Hz

* 600 V (76 only)
** 10A continuous, 20A for up to 30 seconds

Battery Life: Model 76: 500 hours typical. Models 29/79: 700 hours
Size (Without Holster): 166 mm L x 75 mm W x 28 mm D (6.55" L x 2.95" W x 1.12" D)
Weight (Without Holster): 0.34 kg (12 oz)
Lifetime Warranty

FLUKE ®

21/23 Series II Analog/Digital Multimeters

The DMMs of Choice for Industrial High Performance

As industrial counterparts to Fluke's 70 Series II Multimeters, our Models 21 and 23 DMMs are equivalent in specifications, features and functions to the Fluke 75 and 77. The bright yellow color of Fluke's 20 Series II Multimeters and high impact-resistant ABS case reflect their intended use for industrial electrical applications.

- Easy to use - single rotary switch with automatic and manual ranging
- Volts, ohms, diode test, milliamps, 10 amps
- High visibility yellow impact resistant case
- Automatic Touch Hold® to allow automatic measurements while watching probes and circuit, and updates with each new measurement
- Audible Continuity/Diode Test to permit wiring, diode and transistor checks without looking at the display
- New C70Y holster with Flex-Stand™ (optional for Fluke 21)

Safety Conformance

All ranges for 20 Series Multimeters are protected against overloads, including a fused 10 amp range for each model. All voltage inputs are protected to recover or fail safe from power line-surges from major feeders, as defined in IEEE-587-1980, Category B, which includes simulated lightning and load switching transient pulses up to 6 kV superimposed on 660V power lines. Both meters UL 1244 and VDE have been independently tested and approved for UL1244 and VDE listing.

LISTED

Limited Lifetime Warranty!
Keep your Fluke meter up and running
For 20, 70 & 80 Series DMMs Only

Features

	21	23
Digital Display/Counts	3200	3200
Analog Bar Graph/Segments	31	31
Measures AC/DC Voltage	●	●
DC Voltage Accuracy	0.4%	0.3%
Measures AC/DC Current	●	●
Measures Ohms	●	●
Diode Test/Fast Continuity Beeper	●	●
Auto and Manual Ranging	●	●
Holster/Flex-Stand™	N/A*	●
Automatic TouchHold®	●	●
Sleep Mode	●	●

* Available as accessory

Specifications

Function	Range	Best Accuracy		Resolution
		21	23	
VDC	320 mV-1000V	±(0.4% + 1)	±(0.3% + 1)	0.1 mV
VAC	3.2V-750V	±(2% + 2)	±(2% + 2)	1.0 mV
ADC	32 mA-10A*	±(1.5% + 2)	±(1.5% + 2)	0.01 mA
AAC	32 mA-10A*	±(2.5% + 2)	±(2.5% + 2)	0.01 mA
Resistance	320Ω-32 MΩ	±(0.5% + 1)	±(0.5% + 1)	0.1 Ω

*10A continuous, 20A for up to 30 seconds

Battery Life: 2000 hours typical for Models 21 and 23
Size (Without Holster): 166 mm L x 75 mm W x 28 mm D (6.55" L x 2.95" W x 1.12" D)
Weight: 0.34 kg (12 oz)
Lifetime Warranty

Accessories and Ordering Information:

Included Accessories

The Models 21 and 23 are packaged with a pair of safety-designed TL75 right-angle test leads, operator's manual, and installed 9V battery.

The Fluke 23 comes with a C70Y Protective Yellow Holster that includes the Flex-Stand™.

Optional Accessories

See Accessories Compatibility Guide on pages 44-46.

Ordering Information

Fluke 21-2 Multimeter
Fluke 23-2 Multimeter with Holster

Visit us on the world wide web at:
http://www.fluke.com

FLUKE ®

25/27 Series Extra Rugged Analog/Digital Multimeters

Precision Performance in Rugged Handheld Design

The Fluke 25 and 27 combine accurate digital and analog measurement capability with extreme ruggedness and durability. They are totally sealed, tough enough to withstand water, contaminants, chemicals, accidental drops and severe electrical overloads.

- 3200-Count digital display for better accuracy and resolution
- 31-Segment analog bar graph for fast peaking, nulling zero adjustments and capacitor checking
- Fast autoranging (instantly selects proper range) and manual ranging
- TouchHold® function (captures and locks the measurement)
- Rugged, O-ring sealed case for harsh working conditions
- Separate, sealed battery/fuse door
- Min/Max and Relative modes (Fluke 27 only)

Safety Conformance

Rugged safety features of both meters include extensive overload protection, high energy fuses, fused 10A range, and non-metallic cases and bail. All voltage inputs recover or fail safe under power line surge tests for major feeders, as defined in IEEE-587-1980, Category B. This includes simulated lightning and load switching transient pulses up to 6 kV superimposed on 660V power lines. Both meters are MSHA approved, and have met UL1244, CSA C22.2 No. 231 and VDE to IEC 348 testing.

LISTED

Limited Lifetime Warranty!
Keep your Fluke meter up and running
For 20, 70 & 80 Series DMMs Only

Features

	25	27
Digital Display/Counts	3200	3200
Analog Bar Graph/Segments	31	31
Fast Auto and Manual Ranging	●	●
Touch Hold®	●	●
Rugged, O-Ring Sealed Case	●	●
Separate, Sealed Battery/Fuse Door	●	●
Operates from -15°C to +55°C and 95% Relative Humidity	●	●
Meets Military Shock, Vibration and Water Resistance Requirements	●	●
Min/Max Relative Mode		●
Audible Continuity/Diode Test	●	●
Superior EMI Shielding	●	●

Specifications

Function	Range	25 and 27 Best Accuracy	Resolution
VDC	320 mV -1000V	±(0.1% + 1)	0.1 mV
VAC	320 mV -1000V	±(0.5% + 3)	0.1 mV
ADC	320 µA -10A	±(0.75% + 2)	0.1 µA
AAC	320 µA -10A	±(1.5% + 2)	0.1 µA
Resistance	320Ω -32 MΩ	±(0.2% + 1)	0.1Ω
Conductance	32 nS	±(2% + 10)	0.01 nS

Battery Life: Typically over 1000 hours (alkaline)
Size: 203 mm L x 95 mm W x 56 mm D (8" L x 3.75" W x 2.2" D)
Weight: 0.75 kg (1.6 lb)
Lifetime Warranty

Accessories and Ordering Information

Included Accessories
The Fluke 25 and 27 are both offered in dark charcoal grey or safety yellow. Each meter is packaged with a pair of safety designed TL75 right-angle test leads, two insulated alligator clips, spare fuse, 9 Volt battery and operator's manual.

Optional Accessories
See Accessories Compatibility Guide on pages 44-46.

Ordering Information
Fluke 25 STD Multimeter (charcoal grey case)
Fluke 25 YEL Multimeter (yellow case)
Fluke 27 STD Multimeter (charcoal grey case)
Fluke 27 YEL Multimeter (yellow case)

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http://www.fluke.com

FLUKE ®

80 Series
Analog/Digital Multimeters

High Performance Meters for Demanding Industrial and Electronic Applications

Fluke's 80 Series 4000-count DMMs provide 11 functions for electronic and industrial applications, including high performance dc/ac voltage and current measurement, frequency, duty cycle, resistance, conductance, and capacitance measurement. All three meters are EMI shielded and come with a splash-proof and dust-proof case. A protective holster enables safe use under harsh operating conditions.

- Min/Max/Average recording mode with Min/Max Alert™; stores the highest, lowest and 36-hour average of all readings, allowing signal monitoring for seconds or days. Min/Max Alert gives an audible tone for readings above or below previous minimums or maximums
- Frequency, duty cycle and capacitance measurements
- 1000V rms input protection; Input Alert™ provides an audible warning if the test leads are in current, but the function switch is not. This reduces the risk of damage to the equipment being tested and to the meter. 80 Series meters also provide 1000 volt rms input protection in both ohms and diode test
- 3¾-digit, 4000 count display updates 4 times per second, analog display updates 40 times per second
- 4.5-digit mode, 19 999 counts and True-rms ac voltage and current (Fluke 87 only)
- TouchHold® and Relative modes. TouchHold® mode captures the measurement, beeps and locks it on the digital display for later viewing. It automatically updates with each new measurement. The Relative Mode remembers a reading and shows the change (difference) between it and any readings that follow
- Splash-proof and dust-proof case; EMI shielded
- Protective holster with Flex-Stand™
- Zoom mode (Fluke 83 and 85 only) for higher resolution analog readings
- 1 ms Peak Hold mode (Fluke 87 only)
- Backlit display (Fluke 87 only)
- High resolution analog pointer (Fluke 87 only) for changing or unstable signals

Safety Conformance

All ranges are protected against overloads: voltages to 1000V dc and 1000V rms; resistance to 1000V rms. All current inputs are protected with high energy fuses, including the 10 amp range. All meters have been independently tested and approved for UL3111, CSA C22.2 No. 1010 and TUV to EN61010 listing.

Features

	83	85	87
Digital Display/Counts	4000	4000	4000; 19 999 in high resolution mode
Analog Readout	43-segment Bargraph	43-segment Bargraph	Analog Pointer
Measures AC/DC Voltage (400 mV to 1000V)	●	●	●
Measures AC/DC Current (400 µA to 10A*, All Fused)	●	●	●
Resistance	●	●	●
Frequency & Duty Cycle	●	●	●
Capacitance	●	●	●
Audible Continuity/Diode Test	●	●	●
True-RMS AC Voltage and Current	N/A	N/A	●
1 ms Peak Hold	N/A	N/A	●
1000V RMS Input Protection w/Input Alert™	●	●	●
MIN/MAX Average Recording Mode w/MIN/MAX Alert™	●	●	●
TouchHold® & Relative Modes	●	●	●
Splash-Proof & Dust-Proof Case, Protective Holster w/Flex-Stand™	●	●	●
EMI Shielded	●	●	●
Backlit Display	N/A	N/A	●

* 10A continuous, 20A for up to 30 seconds

80 Series
Analog/Digital Multimeters

True-rms

LISTED

CAT III-1000V

Limited Lifetime Warranty!
Keep your Fluke meter up and running
For 20, 70 & 80 Series DMMs Only

Accessories and Ordering Information

Included Accessories
Every meter comes packaged with a C81Y yellow protective holster and Flex-Stand™, TL75 test leads, 9V battery (installed), manual and operator's guide.

Optional Accessories
See Accessories Compatibility Guide on pages 44-46.

Ordering Information
Fluke 83 Multimeter with Holster
Fluke 85 Multimeter with Holster
Fluke 87 Multimeter with Holster

Visit us on the world wide web at:
http://www.fluke.com

Specifications

Function	Range	Best Accuracy			Resolution**
		83	85	87	
VDC	400 mV-1000V	±(0.3% + 1)	±(0.1% + 1)	±(0.1% + 1)	0.1 mV
VAC	400 mV-1000V	±(1.0% + 3)	±(0.5% + 2)	±(0.7% + 2)	0.1 mV
ADC	400 µA-10A*	±(0.4% + 3)	±(0.2% + 2)	±(0.2% + 2)	0.1 µA
AAC	400 µA-10A*	±(1.2% + 2)	±(0.6% + 2)	±(1.0% + 2)	0.1 µA
Resistance	400 Ω-40 MΩ	±(0.4% + 1)	±(0.2% + 1)	±(0.2% + 1)	0.1 Ω
Conductance	40 nS	±(1.0% + 10)	±(1.0% + 10)	±(1.0% + 10)	0.01 nS
Capacitance	5 nF-5 µF	±(1.0% + 2)	±(1.0% + 2)	±(1.0% + 2)	0.01 nF
Frequency	199.9 Hz-199.9 kHz	±(0.005% + 1)	±(0.005% + 1)	±(0.005% + 1)	0.01 Hz

*10A continuous, 20A for up to 30 seconds
**The Fluke 87 has 4½ digit display mode (19,999 counts) as a power-up option. This increases meter reading resolution by a power of 10, over what is stated in the table above (e.g. A listed resolution of 0.1 mV becomes 0.01 mV). The 4½ digit display mode works in all functions except capacitance, peak MIN-MAX and 100 millisecond MIN-MAX.

Battery Life: Models 83 and 85, 500 hours typical (alkaline).
Model 87, 400 hours typical (alkaline)
Size (Without Holster): 187 mm L x 87 mm W x 32 mm D
(7.35" L x 3.41" W x 1.25" D)
Weight: 0.36 kg (12.5 oz)
Lifetime Warranty

860 Series
Graphical™ Multimeters

High Performance Multimeters with Advanced Graphics and Reporting Capabilities

True-rms

LISTED

CAT III-1000V

Graphical™ Multimeters combine the industry's most advanced multimeter capabilities with the visual power of trend graphing and waveform display, component testing, and logic checking together in one easy-to-use, handheld instrument.

Fluke's 860 Series is a family of two GMM test tools, featuring:

- Extraordinary 0.025% dc accuracy for critical measurements.
- Familiar Fluke multimeter functions like true-rms ac volts and resistance, joined by capacitance, conductance, frequency, duty-cycle, pulse-width, period and dB measurements.
- Big, bold GMM display, shows multiple numeric readings and waveforms simultaneously. For example, high-accuracy true-rms readings combined with waveforms to give a complete picture of dynamic signals. Waveform display, with dc to 1 MHz bandwidth, provides a clear view of noise, waveform distortion, and glitches.
- Optically isolated, RS-232 interface for printing and transferring measurement data, FlukeView™ 860 software provides a communication link with PC's, for documentation, analysis and storage. The Fluke SC860 accessory, combines FlukeView™ and cable, making an easy-to-buy interfacing solution.
- TrendGraph™ works like an electronic chart recorder, plotting high resolution meter readings for up to 30 hours, in intervals from 1 second to 15 minutes.
- Component test for checking component signatures on resistors, capacitors, semiconductors and more.
- AutoDiode™ offers a fast and easy way to test diodes and transistors. It electronically reverses leads and shows proper diode polarity.
- Logic Activity Mode offers a simple way to isolate digital failures. It features indication of logic transitions to 10 MHz, and shows if a circuit is active, stuck high or low, and shows the frequency of activity and average dc Voltage.

Safety Conformance

All 860 Series Graphical Multimeters offer true IEC-1010-1 class III 1000 V protection in all functions. They have been independently tested and approved for UL3111, CSA C22.2 No. 1010-1-1992, and VDE listing.

Features

	863	867B
Digital Display/Counts	32,000	32,000
True rms measurements	●	●
AutoDiode™	●	●
High Impedance Input	●	●
Resistance/Conductance/Capacitance	●	●
Continuity	●	●
Duty Cycle/Pulse Width/Period/Frequency	●	●
Min/Max/Avg with Time Stamp	●	●
Relative Mode	●	●
TouchHold® and Peak Hold	●	●
dB	●	●
Auto Ranging or Manual Ranging	●	●
Smoothing™	●	●
Logic Activity		●
Component Test		●
Bright Backlight		●
Rechargeable Batteries/Line Adapter		●
Waveform memory		●

860 Series
Graphical™ Multimeters

Specifications

Function	Range	Best Accuracy		Resolution
		863	867B	
VDC	0-1000V	±(0.04% + 2)	±(0.025% + 2)	10 mV
VAC True-rms AC Coupled Average Responding	0-1000V 50 Hz-300 kHz 50 Hz-50 kHz AC Coupled	±(0.5% + 10) ±(0.5% + 4)	±(0.5% + 10) ±(0.5% + 4)	
DC Current	0 - 10A 0 - 10A	N/A ±(0.1% + 15)	±(0.05% + 15) N/A	0.01 µA 1 mA
AC Current	0 - 10A 0 - 10A	N/A ±(0.75% + 10)	±(0.75% + 10) N/A	0.1 µA 0.01 mA
Resistance	30 - 32 MΩ	±(0.07% + 2)	±(0.07% + 2)	0.01Ω
Capacitance	10000 pF - 10000 µF	±(1.9% + 2)	±(1.9% + 2)	10 pF
dB/dBm	2-1200 Ohm References	±0.5 dB	±0.5 dB	0.01 dB
Frequency	2 Hz to >10 MHz 2 Hz to > 2 MHz	N/A ±(0.05% + 1)	±(0.05 + 1) N/A	0.01 Hz
Current ranges		4	6	
Meter AC bandwidth		300 kHz	300 kHz	

Power Supply: Six internal AA alkaline batteries included with 863. External line-powered battery eliminator and internal rechargeable NiCd battery pack included with 867B.
Size: 246.4 mm L x 137.2 mm W x 69.9 mm D (9.7" L x 5.4" W x 2.75" D)
Weight: Without batteries: 1.1 kg (2.3 lbs). With battery pack: 1.4 kg (3.0 lbs).
Three Year Warranty: One year calibration interval.

Accessories and Ordering Information

Included Accessories
TL70A Test Leads
Optional Accessories
See Accessories Compatibility Guide on page 44-46.
Ordering Information
Fluke 863 Graphical Multimeter
Fluke 867B Graphical Multimeter
SC860 FlukeView 860 Software and optically-isolated RS-232 cable

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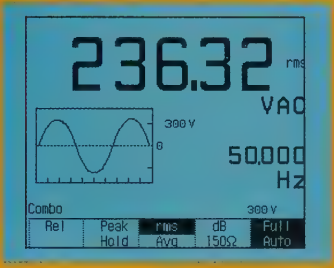
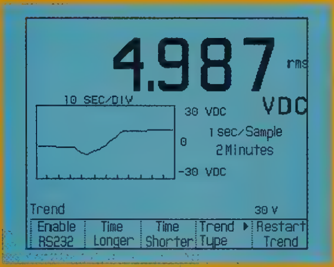
http://www.fluke.com

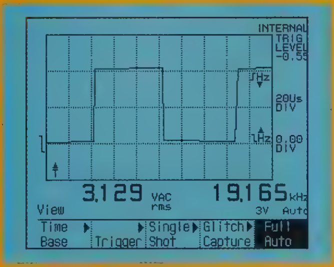
Graphical Power



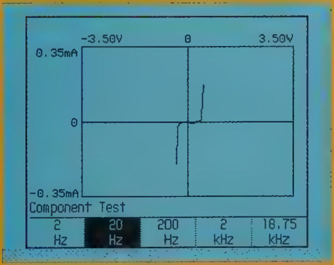
1. Combo Mode



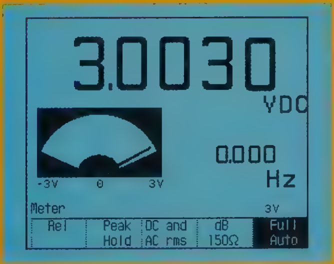
2. TrendGraph™ Mode



3. View Mode



4. Component Test Mode



5. Multimeter Dual Display Mode

FLUKE ®

8060A/8062A 41/2 Digital Handheld DMMs

Fluke's Most Accurate and Powerful Handheld DMMs

True-rms

LISTED

Fluke's 8060A and 8062A 4½-digit DMMs offer more measurement capabilities than many bench/portable models. Well suited for engineers and technicians working in audio, video, telecommunications, or computer technology, both meters combine precision and accuracy with a wealth of features to fit nearly every application.

- True-rms ac voltage and current measurement
- Fast audible-visual continuity tests
- Relative Reference (offset). When measuring ohms with the 8060A or 8062A, the relative reference function displays only the difference between a stored reference value and a measured value, even if the range was changed between readings. Relative mode works in all functions and ranges
- Low-power ohms on all resistance ranges
- Constant-current diode test mode
- Resistance and conductance measurements
- Frequency and dB measurements (8060A). The 8060A's direct dB readout (referenced to 600Ω) easily and accurately measures the dB gain or loss of amplifiers, filters, or attenuators.

Safety Conformance

The 8060A and 8062A are designed with rugged cases and safety engineered jacks, test leads and double-fused current inputs. All functions and ranges have the same extensive overload protection built in. Both instruments have been independently tested and approved for UL1244 listing.

Features

	8060A	8062A
20 000-Count Resolution	●	●
True-rms AC Measurements	Voltages to 100 kHz	Voltages to 30 kHz
Basic DC Accuracy	0.04%	0.05%
Frequency Counter	●	
dBm or Relative dB	●	
Conductance	●	
Relative Reference (Offset)	●	●
Audible/Visual Continuity Test	●	●
Low-Power Ohms, All Resistance Ranges	●	●
Constant-Current Diode Test	●	●
Resistance to 300 MΩ	●	●

Specifications

Display: 20 000 Counts Reading Rate: 2.5x per second*

Function	Range	Best Accuracy		Resolution
		8060A	8062A	
VDC	200 mV - 1000V	±(0.04% + 2)	±(0.05% + 2)	10 µV
VAC (True-RMS, AC Coupled)	200 mV - 1000V	±(0.2% + 10)	±(0.5% + 10)	10 µV
dBm, 600Ω Reference	-50 - +60 dBm	±(0.15 dB)	N/A	0.01 dB
ADC	200 µA - 2000 mA	±(0.2% + 2)	±(0.3% + 2)	0.01 µA
AAC (True-RMS)	200 µA - 2000 mA	±(0.75% + 10)	±(0.75% + 10)	0.01 µA
Resistance	200 Ω - 300 MΩ	±(0.07% + 2)	±(0.1% + 2)	0.01 Ω
Frequency (8060A only) 12 Hz to >200 kHz	200 Hz- 200 kHz	±(0.05% + 1)	N/A	0.01 Hz
Conductance (8060A only)	2000 nS (equivalent to 500 kΩ)	±(0.5% + 20)	N/A	0.01 Hz (equivalent to 10 000 M Ω)

*Except in frequency & dBm

Battery Life: 170 hours typical (gV alkaline)
Size (Without Holster): 180 mm L x 86 mm W x 45 mm D (7.1" L x 3.4" W x 1.8" D)
Weight: 0.41 kg (0.90 lb)
One Year Warranty: One year guaranteed calibration

Accessories and Ordering Information

Included Accessories
Both meters come with TL70A test leads, 9V battery, operator's manual, and spare fuse.

Optional Accessories
See Accessories Compatibility Guide on pages 44-46.

Ordering Information
8060A DMM
8062A DMM

Visit us on the world wide web at:
http://www.fluke.com

FLUKE ®

Fluke 45 Dual Display Multimeter

Maximum Versatility In a Single Instrument

The Fluke 45 is a feature-rich 5-digit, 100 000 count meter that truly fits all applications and virtually any measurement need - on the workbench or in the field. Two multifunction displays and 16 different measurement capabilities allow wide ranging versatility at an affordable price.

The Fluke 45 delivers high performance and flexibility for manufacturing test, depot and field service, as well as R&D applications.

- Multifunction vacuum fluorescent dual display allowing the user to measure two different parameters of the same signal from one test connection, and view both measurements at the same time.
- True-rms voltage and current, including ac + dc
- RS-232 interface standard, IEEE-488.2 option
- Frequency measurement to 1 MHz
- dB measurements: 21 selectable reference impedances. From 2 to 8000, and audio power from 2Ω to 16Ω
- Compare (Hi/Lo/Pass) function for quick in-tolerance tests
- 0.05% dc current accuracy for 4-20 mA current loop service
- Touch Hold®, Diode Test/Continuity
- Relative Mode: remembers a reading and shows the change between it and readings that follow
- Min/Max Mode: records highest and lowest values measured; either can be recalled and displayed at any time

True-rms

- Closed-case calibration. Calibration can be performed via the RS-232 (or optional IEE-488.2) interface or manually from the front panel. No internal adjustments are required
- Quickstart™ accessory software package; allows quick set-up and effortless communication between the Fluke 45 and an IBM PC or compatible. Custom test procedures are easily created, saved, and recalled

Safety Conformance

Independently tested and approved for CSA to 556B, and VDE to IEC 348 listing.

Features

Multifunction Vacuum Fluorescent Dual Display
True-RMS Voltage and Current Measurement, Including AC + DC
0.05% DC Current Accuracy for 4-20 mA Current Loop Service
Standard RS-232 Interface
Optional IEEE-488.2 Interface
Frequency Measurement to 1 MHz
dB Measurements
MIN/MAX Mode
RELATIVE Mode
COMPARE (Hi/Lo/Pass) for Quick In-Tolerance Tests
Closed Case Calibration
Optional: Rack-Mount Kit
Touch Hold®
Diode Test/Continuity

Specifications

Display: 3000 Counts, 30 000 Counts, 100 000 Counts

Reading Rates: Fast (20 times per second), Medium (5 times per second), Slow (2.5 times per second)

Function	Range	Best Accuracy (medium reading rate)	Resolution
VDC	0V-1000V	±0.025% + 2	1 µV-0.01V
VAC (True RMS, AC Coupled) Freq. 20 Hz-100 kHz	15 mV-750V	±0.2% + 10	1 µV-0.01V
dB Readout (600 Ω Ref.) (Ref. Z 2Ω -8000Ω)	-34-+60	±0.08 dBm	0.01 dB-0.1 dB
ADC	0 mA-10 A	±0.05% + 2	0.1 µA-10 mA
AAC (True RMS, AC Coupled) Freq. 20 Hz-20 kHz	15 µA-10 A	±0.5 % + 10	0.1 µA-10 mA
Resistance	0Ω-100 MΩ	±0.05% + 2	0.001Ω-1 MΩ
Frequency	5 Hz->1 MHz	±0.05% + 1	.01 Hz-1 kHz

Size: 216 mm W x 93 mm H x 286 mm D (8.5" W x 3.67" H x 11.27" D)
Weight: Net 2.4 kg (5.2 lb); with battery 3.2 kg (7 lb)
One Year Warranty: One year calibration interval

Accessories and Ordering Information

Included Accessories

Line cord, TL70A test leads, operator's manual, and Quick Reference Guide.

Options

Field/customer installable: Fluke 45-01K Rechargeable Lead-Acid Battery Kit
Fluke 45-05K IEEE-488.2 Interface Kit

Optional Accessories

C40 Soft Carrying Case
M00-200-634 Rack Mount Kit
RS40 6' RS-232 Terminal Cable
RS41 6' RS-232 Modem Cable
S45 QuickStart™ 45 Software

Ordering Information

Fluke 45 Dual Display Multimeter
Fluke 45-01 with Factory-Installed Battery
Fluke 45-05 with Factory-Installed IEEE-488.2 Interface
Fluke 45-15 with Factory-Installed Battery and IEEE-488.2 Interface

Visit us on the world wide web at:
http://www.fluke.com

Fluke 39 Power Meter/41B Power Harmonics Analyzer

Power Tools for Power Quality

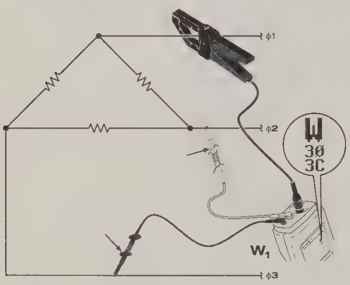
The Model 39 Power Meter and 41B Harmonics Analyzer combine the ease of use of a digital multimeter, the visual feedback of an oscilloscope and the power of a harmonics analyzer in a single instrument. If you're testing power on three-phase systems or trouble-shooting harmonics on non-linear loads, no test tool makes it easier.

The Model 41B is ideal for further analyzing data and optimizing system performance. Use the Model 41B's FlukeView™ software (included) to download acquired data to a printer or an MS-DOS® or Windows™ compatible computer for analysis and presentation.

Three Views of each reading:

- Waveform
- Bargraph showing harmonic levels
- Numeric values

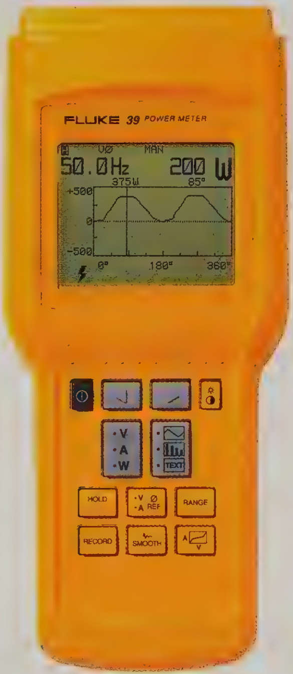
- Real-time display updates. Display updates three times per second, providing a dynamic view of actual circuit conditions
- Comprehensive measurements. Measure rms, peak and total harmonic distortion (THD) for complex voltages and currents – with no manual calculations required.



- Three-Phase readings
  From a simple single-phase measurement, automatically calculates three-phase power and power factor for three-wire balanced loads.
- System Critical Data
  Immediate readings of Power Factors, KVAR, Crest Factor, K-Factor
- Display Harmonics individually to the 31st
- Min/Max and Average recording
- Data Storage of up to eight complete measurement sets (Fluke 41B)
- Isolated Serial Interface for communications with printer or DOS or Windows-compatible computer (Fluke 41B)

Safety Conformance

Independently tested and approved for CSA C22.2 No. 1010-1, TUV to EN61010 and UL3111 listing. Products are categorized as pollution degree 2, installation Category III, material group II, 600V. Protection Class II as described in IEC 1010-1, Annex H.



NRTL

CAT III-600V

True-rms

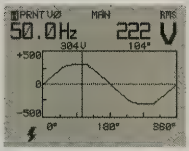
Features

	39	41B
Direct 3Ø power readouts from simple single-phase measurement	●	●
True-rms voltage from 5.0V to 600V	●	●
True-rms current from 1A to 500A (1000A with optional probe)	●	●
Peak, DC, and Crest Factor	●	●
Total harmonic distortion (%THDF and %THDR)	●	●
Active power from 10W to 300kW (600kW with optional probe)	●	●
Apparent power (VA) & Reactive Power (VAR)	●	●
Total Power factor (PF)	●	●
Displacement Power Factor (DPF)	●	●
K-factor	●	●
Frequency from 6Hz - 99.9Hz (fundamental)	●	●
Harmonics to 31st	●	●
Phase angle of fundamental and harmonics	●	●
Waveform, text and spectrum displays	●	●
Record mode - MIN, MAX and AVG	●	●
Zoom mode on harmonics bargraphs	●	●
Memory for 8 complete data sets		●
Optically isolated RS-232 interface		●
FlukeView™ PC software for Windows® and DOS included		●

Fluke 39 Power Meter/41B Power Harmonics Analyzer

Applications

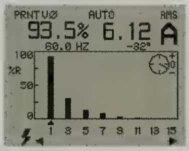
VOLTS



Display
One cycle of the fundamental waveform and its frequency. Instantaneous voltage at cursor position.

Application
Detecting flat-topped voltage caused by current harmonics, and notching caused by SCR switching.

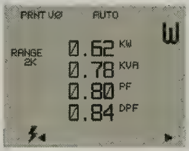
AMPS



Display
%-fundamental or %-rms, rms value, frequency, and phase angle of fundamental or harmonic currents (up to 31st), as selected by cursor from bar graph.

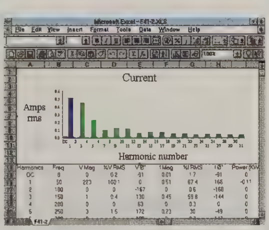
Application
Identifying sources of harmonic currents. Obtaining data for designing, specifying or sizing transformers, filters, etc.

WATTS



Display
Watts, volt-amps, power factor (total) and displacement power factor (COS Ø) of single or three-phase power.

Application
Identifying displacement (COS Ø) versus total power factor. Determining proper power-factor correction methods.



Using the included FlukeView 41B software you can upload and download measurements and setups to a Windows or DOS based PC.

Accessories and Ordering Information

Included Accessories
39/41B: 80i-500s ac Current Probe, TL24 Test Leads, AC20 Test Clips, TP20 Test Probes, operator's manual.
41B: PM9080-001 Isolated RS-232 Cable, FlukeView Software

Optional Accessories
See accessories compatibility guide on pages 44-46.

Ordering Information
Model 39 Power Meter. Model 41B Power harmonics Analyzer.

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http://www.fluke.com

Specifications

Frequency Range, Fundamental: 6-65 Hz and DC.
Minimum Input Levels: 5V rms or 1A rms

Function	Range & Resolution	Accuracy
Voltage	5.0V to 600V rms (AC+DC) ±5.0V to ±933V peak	(0.5% + 2 digits) Peak or DC: ±(2% + 3 digits) [Add 2 digits if <15V rms]
Current (1mV/A) Isolated input	1.00mV(A) to 1000mV(A) rms (AC+DC) ±1.0mV(A) to ±2000mV(A) peak	±(0.5% + 3 digits)+probe specs Peak or DC: ±(2% + 4 digits) + probe specs
Watts/Volt-Amps (1mV/A) Isolated input	0.0W(VA) to 600kW (kVA) average 0.0W(VA) to ±2000kW (kVA) peak	AC+DC: ±(1% + 4 digits) + probe specs
Harmonics (harmonic level >5% using Smooth 20)	Volts: Fundamental to 13th At 31st Amps/Watts: Fundamental to 13th At 31st	±(2% + 2 digits) ±(8% + 2 digits) ±(3% + 3 digits) + probe specs ±(8% + 3 digits) + probe specs
Frequency	Fundamental: 6.0 Hz to 99.9 Hz	±0.3 Hz
Input Bandwidth	DC, 6 Hz to 2.1 kHz	
Crest Factor (CF)	1.00 to 5.00	±4%
Power Factor (PF)	0.00 to 1.00	±0.02
COS Ø (DPF)	0.00 to 1.00	±0.04 to ±0.03 (0.30 to 0.89) ±0.02 (0.90 to 1.00)
Phase	-179° to 180°	
K-Factor (KF)	1.0 to 30.00	±10%
% THD-F	0.00% to 99.9%	±(0.03 Reading + 2.0%)
% THD-R	0.0% to 99.9%	±(0.03 Reading + 2.0%)

Battery Life: 4 alkaline "C" cells ANSI/NEDA-14A, IEC-LR14 (supplied)
48 hours typical (continuous)
Shock & Vibration: Per MIL-T-28800, Class 3
Case: Drip-Proof and Dust-Proof per IEC, IP 52
Size: 234 mm L x 100 mm W x 64 mm D (9.2" L x 3.9" W x 2.5" D)
Weight: 0.9 kg (2.0 lb)
One-Year Warranty

39/41B Power Meter Glossary:

DPF Displacement Power Factor (COS Ø). DPF is used to measure the effect of inductive (motor, transformer) and capacitive loads on the efficiency of an ac distribution system. Such loads have a reactive component (see VARs) which must be taken into account when sizing system capacity, but they are still linear loads (current is drawn as a sine wave). DPF therefore does not include the effect of non-linear harmonic currents. However, a low DPF will be a major cause of a low PF (Total Power Factor), and would indicate the need for corrective measures.

PF Power Factor or Total Power Factor. Active Power divided by Apparent Power. PF is a measurement of the efficiency of an ac power transmission and distribution system, including the effects of harmonics (as well as VARs). Harmonic currents cause PF to be lower than DPF. (PF below 90% will often result in extra demand charges by utilities.)

%THD-F Percent Total Harmonic Distortion-Fundamental reference. This reading represents the ratio of the harmonic components of voltage (or current) to the voltage (or current) of the fundamental alone. All measurements are true-rms.

%THD-R Percent Total Harmonic Distortion-RMS reference. This reading represents the ratio of the harmonic components of voltage (or current) to the total voltage (or current), including the fundamental and all harmonics. All measurements are true-rms.

(k)W (kilo) Watts. Active power, also known as Real/True Power. Watts measure that portion of electrical power which does work, which by definition includes heat losses. Utility charges are based on Watts.

(k)VA (kilo) Volt-Amperes. Apparent power. VA is computed by taking the product of the rms values of voltage and current. It is a measure of the total electrical power capacity of a distribution system or component equipment. In addition to Watts, it includes the contributions of VARs and harmonic currents. This term is of interest because utility and facility engineers must size their system equipment in VA, in effect providing the current-carrying capacity to handle the worst-case situation.

(k)VAR (kilo) Volt-Amps Reactive. Reactive Power. VARs are the reactive component of VA (Apparent Power), caused by a phase shift between ac current and voltage in inductors (coils) and capacitors. In inductors, current lags voltage (in time), while in capacitors, current leads voltage. VARs are typically first present in a distribution system as a result of inductive loads such as motors, reactors and transformers. VARs are then used in sizing power factor correction capacitors, which are used to offset the effects of these inductive loads.

FLUKE ®

ScopeMeter® Series B

Handheld Digital Storage Oscilloscopes

Fluke ScopeMeter 90 Series B is the most powerful family of handheld Digital Storage Oscilloscopes used by more Engineers worldwide than any other, in rugged Industrial applications.

- Handheld format at just 4 lb. (10.8"H x 5.5"W x 2.5"D) makes it easy to take measurements anywhere, for 4 hours on a single charge. Rechargeable batteries and charger included
- 100 MHz bandwidth dual channel DSO and 5 GS/s repetitive sampling provides excellent signal fidelity
- Large, high brightness cold cathode fluorescent backlit display has excellent contrast and visibility from dark corners to broad daylight
- Extensive trigger capabilities include edge, video, event, n-cycle and external triggering. Time delay up to 20 divisions pre-trigger view and up to 640 divisions post-trigger view.
- Video triggering with selectable line number. User selectable 2-Field or 4-Field sequence. Select from NTSC, PAL, PAL/M, SECAM or Non-Interlaced video with line selection up to 3200 lines and line frequency up to 65 kHz
- 30k deep memory ScopeRecord™ shows events as long as 125 screens, to capture long events with good time detail. Use for motor starts, complete machine cycles, power systems, UPS systems
- Extensive memory to save up to 40 user setups, 20 waveforms and 10 screens. Recall instantly for quick reference or printing. See selection chart on next page for details
- Versatile cursor measurements include Vmean, True VAC-rms, Hz, rise/fall time, Vpeak-peak, time between cursors, time at cursors (Time of day or time from start), Vmin-peak, phase, dV between cursors, V at cursors. Measurements can be scaled to Amps
- ScopeMeter B tools features include continuous autoset, 40 ns Glitch capture and waveform mathematics. Includes add, multiply, filter, subtract, invert and integrate. Instantaneous or mean Watts with optional current probes
- True-rms DMM with 3000 count resolution and 0.5% accuracy includes following measurements: VDC, True-rms VAC, Hz, duty cycle, pulse width, RPM, dBm, dBV, dBW, Audio or RF Watts, Amps, temperature, Ohms, continuity and diode check
- TrendPlot™ meter logging shows a simultaneous graph of the minimum, maximum and average values of any meter readings, over hours or days. Time and date stamp help trace and identify intermittent problems
- Optional printer/PC interface and Windows software make documentation tasks simple. (Included in Model 105 B)
- Rugged, splash proof design with holster for long life and reliable operation in industrial environments

LISTED UL

CSA

CAT III-600V

True-rms

Safety Conformance

Safety designed for measurements on 600 V industrial power systems with included probes. EN61010-1 Cat III, UL 1244, CSA C22.2 No 1010.1, ANSI/ISA-S 82.01-94

ScopeMeter® Series B

Accessories and Ordering Information

Included Accessories
Comes complete with PM 8907 line adapter/charger, 10:1 600V safety designed probes (UL Listed), industrial meter test leads, industrial alligator clips, protective holster, operator manual, soft accessory case and rechargeable battery pack

Optional Accessories
Accessory cases, batteries, test leads and probes, interface cables and FlukeView software available. See Accessories Compatibility Guide on page 44-46.

Ordering Information
Fluke 92B ScopeMeter 60 MHz
Fluke 96B ScopeMeter 60 MHz
Fluke 99B ScopeMeter 100 MHz
Fluke 105B ScopeMeter 100 MHz

Model 105B includes: Hard-shell Carrying Case, Optically isolated RS 232 interface cable, and FlukeView for ScopeMeter software.

Features

Oscilloscope Features

	105B	99B	96B	92B
Continuous Autoset	●	●	●	●
Glitch capture down to 40 ns	●	●	●	●
Video Triggering: NTSC, PAL, SECAM and Hi resolution video, including line selection	●	●	●	●
Non-interlaced Video Triggering	●	●	●	●
Envelope Mode Min Max	●	●	●	●
Measure Amps with optional current clamps	●	●	●	●
Cursor measurements	●	●	●	
Waveform Math (Integrate, +.-, filter)	●	●		

Autoranging True-rms Multimeter Features

	105B	99B	96B	92B
Advanced Measurements (Temp., Current, % Duty, Pulse width, dB, Hz, Amps, & more)	●	●	●	●
Diode test and continuity beeper	●	●	●	●
DMM measurements with waveform	●	●	●	●

General Features

	105B	99B	96B	92B
High-contrast, gray scaled backlit display	●	●	●	●
Waveform image transfers to a PC and Remote operation	●	●	●	
Screen image transfers to a PC	●	●	●	●
Optically isolated RS-232C Interface for Printer & PC Interface cable optional (included in 105B)	●	●	●	●
On line information screens	●	●	●	●
EN61010-1 & UL listed for 600 Volts rms, CSA approval	●	●	●	●
Signal Generator/Component tester output	●	●		
PC Software for Windows + PM 9080 Cable	●	†	†	
Hard Carrying case	●	†	†	†

● Standard equipment † Optional

Specifications

Oscilloscope Specifications

	105B	99B	96B	92B
Bandwidth	100 MHz	100 MHz	60 MHz	60 MHz
Maximum Repetitive Sample Rate	5 GS/s	5 GS/s	2.5 GS/s	2.5 GS/s
Number of channels	2 + Ext. Trig	2 + Ext. Trig	2 + Ext. Trig	2 + Ext. Trig
Rise Time	<3.5 ns	<3.5 ns	<5.7 ns	<5.7 ns
Time/Division	5ns - 60s	5ns - 60s	10ns - 60s	10ns - 60s
Volts/Division	1mV - 100V	1mV - 100V	5mV - 100V	5mV - 100V
Record Length (bytes)	512/30,000	512/30,000	512/30,000	512
Screen/Waveform/Set-up Memories	10 / 20 / 40	10 / 20 / 40	5 / 10 / 20	- / - / -
Pre & post trigger adjustments in divisions	-20 to + 640	-20 to + 640	-20 to + 640	-20 to + 640

Autoranging True RMS MultiMeter Specifications

	105B	99B	96B	92B
Number of DMM channels	1	1	1	1
Display readout (Basic DC Accuracy 0.5%)	3000 cnts	3000 cnts	3000 cnts	3000 cnts
TrendPlot with time and date stamp	1 channel	1 channel	1 channel	1 channel

General Specifications

	105B	99B	96B	92B
NiCd Battery Operation & Charger	4 hours	4 hours	4 hours	4 hours
Automatic setup measurements	40	40	40	28
Size	2½x5½x11"	2½x5½x11"	2½x5½x11"	2½x5½x11"
Weight	4 lb.	4 lb.	4 lb.	4 lb.

Three year warranty on parts and labor.

30/32 Series Clamp Meters

LISTED

CAT III-600V

The Fluke 30 and 32 Clamp Meters are rugged, self contained, general purpose Clamp Meters that measure up to your tough standards at a basic price. The model 30 is average-sensing and measures ac current, ac volts, ohms, and continuity for troubleshooting commercial and residential electrical and HVAC systems with traditional linear loads. The model 32 is true-rms responding with a crest factor of up to 3 and is ideal for troubleshooting systems with non-linear loads like personal computers, adjustable frequency drives, and HID lighting. These all draw current in short pulses causing harmonics in the load current and distorted waveforms. You can view the results instantly on the easy-to-read digital display. Its tapered jaws allow easy access in crowded junction boxes and can accept cables up to 38 mm in diameter.

- Measures up to 400A ac, 600V ac, 200Ω.
- Rugged enough to take a drop from a two meter ladder
- Display Hold captures readings in difficult to reach areas for later viewing
- Easy-to-read 3.5-digit 2000-count digital display
- Manual ranging for repetitive measurements
- Average ac responding measurements (Fluke 30 only)
- Protective soft carrying case included.

For 32 only

- Extended current measurement to 600A
- True-rms ac responding
- Crest factor of max 3

Safety Conformance

Built-in overload protection is provided to 600A/660V. Independently tested and approved for UL1244 (30), UL3111 (32) and TUV to EN61010 listing.

Features

	30	32
True-rms responding		●
Average AC responding	●	
3½ digit, 2000 count display	●	●
Rugged design	●	●
AC Current	●	●
DC Current		
AC Volts	●	●
DC Volts		
Extended current measurement to 600A		●
Manual ranging	●	●
Display Hold	●	●
Protective case and TL75 Hardpoint™ Test Leads	●	●
Continuity Beeper under 250Ω	●	●

Specifications

Function	Range	Resolution	Accuracy	
			30	32
AC Current	600A 400A 200A	1A 1A 0.1A	N/A ±(1.3%+3) 0-100A: ±(1.8%+8) 100-200A: ±(1.4%+0)	±(2.5%+3) ±(1.3%+3) 0-100A: ±(1.8%+8) 100-200A: ±(1.4%+0)
AC Volts 50/60 Hz	200V 600V	0.1V 1.0V	±(1.2%+3)	±(1.2%+3)
Resistance	200Ω	0.1Ω	±(1.5%+2)	±(1.5%+2)
Crest Factor	400A 600A		N/A	≤3.0 ≤2.0

** Fluke 32 only

Operating Temperature: -10°C to +50°C (14°F to 122°F)
Storage Temperature: -20°C to +60°C (-4°F to 140°F)
Battery Life: Model 30: Carbon-zinc, 200 hours continuous, Model 32: Alkaline, 300 hours continuous Automatic low-battery indicator
Size: 213 mm L x 93 mm W x 45 mm D (8.4" L x 3.75" W x 1.77" D)
Weight: 0.45 kg (1 lb)
One Year Warranty

Accessories and Ordering Information

Included Accessories

The Model 30 and 32 come packaged with C31 Soft Case, TL75 Hard Point™ Test Leads, 9V battery and operator's manual

Optional accessories

See Accessories Compatibility Guide on pages 44-46

Ordering Information

Fluke Model 30 Average Sensing Clamp Meter
Fluke Model 32 True-rms Clamp Meter

Visit us on the world wide web at:
http://www.fluke.com

Fluke 36 Clamp Meter

AC/DC and True-rms Current and Volt Measurements

New

True-rms

CAT III-600V

Now you can do more with one tool. The Fluke Model 36 is a rugged, reliable clamp meter that measures ac and dc current and volts. This versatile clamp meter offers true-rms sensing and MAX Hold for measuring inrush current or maximum load on a circuit. Tapered jaws and slim profile let you get at cables in tight places. Use it for troubleshooting in industrial, commercial, avionics and marine environments.

- Jaws accept one 750 MCM (1.2″ (3 mm)) cable or two 500 MCM (.98″ (2.46 cm)) cables up to 38 mm (1.5″ in diameter)
- DC current zero control for nulling out jaw/sensor offset
- Easy, single-handed operation
- Easy-view 2000 count digital display
- Continuity beeper
- Protective soft carrying case and TL75 test leads included
- Sleep mode extends battery life

Safety Conformance

Independently tested and approved for UL3111, UL3111 (Canadian), and VDE to EN6010 listing.

Features

	36
True-rms responding	●
Average AC responding	
3½ digit, 2000 count display	●
Rugged design	●
AC Current	●
DC Current	●
AC Volts	●
DC Volts	●
Extended current measurement to 600A	
Manual ranging	●
Display Hold	
Protective case and TL75 Hardpoint™ Test Leads	●
Continuity Beeper under 250Ω	●

Specifications

Function	Range	Resolution	Accuracy	Crest Factor	Overload Protection
DC Current*	1000A 1000A 200A	1A 1A .1A	0-600A: ±(1.9%+4) 600-1000A: ±(3%+3) 0-200A: ±(1.9%+7)	NA	1000A
DC Volts	600V/200V	1V/.1V	±(1.0%+3)	NA	1200V rms continuous
AC Current (45-400Hz)	600A 200A	1A .1A	10-600A: ±(2%+3) 0.5-200A: ±(2%+5)	2≤CF≤3, Add 2% Rdg	600A continuous (CF≤3)
AC Volts (45-400Hz)	600V/200V	1V/.1V	±(1.5%+3)	≤3 (pk voltage ±933V)	1200V rms
Ohms	200Ω	.1Ω	+(1.2%+5)	NA	660V rms continuous

*Electromagnetic compatibility: (DC Current specification only)
RF field = ≤1V/m, total accuracy = specified accuracy
RF field = 3V/m, total accuracy = specified accuracy + 4% of range

Operating Temperature: -10°C to 50°C (14°F to 122°F)
Battery Life: 60 hours continuous, alkaline, sleep mode
Size (Without Holster): 248.9 mm L x 95.2 mm W x 45 mm D (9.8" L x 3.75" W x 1.752" D)
Weight: 0.45 kg (1 lb)
One Year Warranty

Accessories and Ordering Information

Included Accessories
The Fluke 36 comes equipped with a soft carrying case, TL75 Hard Point™ Test Leads, Operator's Manual, and 9V battery (installed)

Ordering Information
Fluke 36 Clamp Meter

Visit us on the world wide web at:
http://www.fluke.com

31/33 Series Clamp Meters

True-rms AC Current Measurements

True-rms

CAT III-600V

The Fluke 31 and 33 Clamp Meters offer the combination of true-rms measurements and rugged, reliable performance needed to troubleshoot problems associated with both traditional and non-linear loads.

Their tapered jaws allow easy access in crowded junction boxes and can accept cables up to 38 mm in diameter.

- True-rms current measurement for testing non-linear and traditional loads
- Frequency measurement (Hz)
- Hand Guard - for prevention of accidental contact with conductors and clip-on holster
- Display Hold
- Combination Digital/Analog Display
- Power-Up Self Test - verifies proper functioning and estimates battery life
- Beeper provides audible feedback
- Auto and Manual Ranging
- Smoothing™ (Fluke 33 only); displays a 3 second running average of RMS current or frequency
- Min/Max (Fluke 33 only); records maximum, minimum, and average RMS current or frequency values for over 24 hours
- Crest (Fluke 33 only); measures the instantaneous peak value of the current waveform. Used to determine crest factor which can indicate the presence of harmonics
- Sleep Mode to preserve battery life

Safety Conformance

Designed to meet UL 1244, IEC 348/1010, IEC 664 installation category III, CSA C22.2 No. 231, ANSI/ISA S82, VDE 0411. Independently tested and approved for UL, CSA and LCIE listing.

Features

	31	33
True-RMS AC Current Measurement (0.3-700A)	●	●
Digital/Analog Display	●	●
Frequency Measurement (0.5 Hz-10 kHz)	●	●
Display Hold	●	●
Auto and Manual Ranging	●	●
Crest/Instantaneous Peak	N/A	●
Smoothing™	N/A	●
MIN/MAX Record	N/A	●
Safety Hand Guard	●	●
Beeper for Audible Feedback	●	●
Power-Up Self Test	●	●
Clip-On Holster	●	●

Specifications

Function	Range	Resolution	Best Accuracy	
			31	33
AC Current (RMS)	0.3 to 400A (700A max sine wave)	0.01A on 40A range 0.01A on 40A range and above	± (2%+2)	± (2%+2)
Frequency	0.5 to 10kHz	0.1Hz < 1 kHz 1Hz > 1 kHz	± (0.2%+3)	± (0.2%+3)
Crest/ Instantaneous Peak	$100A_{peak}$ max	0.2A on 40A range 2A on 400A range 4A above 400A range	N/A	± (3%+3)
Crest Factor	400A		≤2.5	≤2.5

Battery Life: 80 hours typical (alkaline).
Size: 231.5 mm L x 97 mm W x 43.9 mm D (9.11" L x 3.82" W x 1.73" D).
Weight: .5 kg (17.6 oz).
One Year Warranty

Accessories and Ordering Information

Included Accessories

The Fluke 31 and Fluke 33 come equipped with C30 Holster, Operator's Manual, Quick Reference Guide, 9V battery (installed).

Optional Accessories

See Accessories Compatibility Guide on pages 44-46.

Ordering Information

Fluke 31 Current Clamp with Holster
Fluke 33 Current Clamp with Holster

Visit us on the world wide web at:
http://www.fluke.com

Fiber Optic Meters

Test Fiber Optic Cable with Your Digital Multimeter

New

⚠ CLASS I LED PRODUCT ⚠

The Fluke Fiber Optic Meter (FOM) helps you test and maintain fiber optic cable without having to buy a whole new meter. Plug the FOM directly into any DMM with a mV dc function and a 10 M input impedance, such as the Fluke 87 and quickly and accurately verify fiber optic cable system loss. Light sources and patch cords sold separately.

- The compact FOM plugs into your DMM and makes testing in tight spaces easy
- A variety of light sources (FOS 850, FOS 1300, and FOS 850/1300) and patch cords (ST to ST, ST to FC, ST to SC, ST to SMA) let you get just what you need for testing different cable types and lengths
- Highly accurate readings mean less work, less repeated testing
- Input connector: fixed ST
- Battery life: 16 hours minimum, 9V alkaline
- LED low battery indicator
- Operating temperature: 0°C to +40°C (32°F to +104°F)
- Storage temperature: 20°C to +70°C (4°F to +158°F)

Specifications

Features	FOM
Output	1 mV per 1 dB
Application Range	800–1600 nm
Acceptable Fiber Types	9/125 to 100/140 µm
Operating Range	+3 to -50 dBm
Absolute Accuracy	±0.25 dB
Relative Accuracy	±0.15 dB
Repeatability	±0.04 dB
Operating Temp/RH	0° to 40°C (32°F to 104°F) up to 75% RH

Features	FOS 850	FOS 1300	FOS 850/1300
Wavelength	850 nm ±30 nm	1300 nm -40/+50 nm	850 nm/1300 nm ±30 nm/40/+50 nm
Output Power	-20 dBm	-20 dBm	-20 dBm
Connector	ST	ST	ST
Stability	±0.2 dB per 8 hours	±0.2 dB per 8 hours	±0.2 dB per 8 hours
Battery Type	9V alkaline NEDA 1604A or IEC 6LR61	9V alkaline NEDA 1604A or IEC 6LR61	9V alkaline NEDA 1604A or IEC 6LR61
Battery Life	24 hours typical	24 hours typical	24 hours typical
Operating Temp/RH	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)

Ordering Information

Ordering Information:

FOM Fiber Optic Meter
FOS 850 Fiber Optic Source 850 nm
FOS 1300 Fiber Optic Source 1300 nm
850/1300 Fiber Optic Source
  850 nm/1300 nm
Patch Cords
  FOC ST/ST
  FOC ST/FC
  FOC ST/SC
  FOC ST/SMA
Fiber Optic Accessory
  FOA ST/ST ST to ST Coupling

Visit us on the world wide web at:
http://www.fluke.com

700 Series Documenting Process Calibrators

FLUKE ®

Calibrators as Versatile as You Are

New

Accessories and Ordering Information

Included Accessories

Every 700 Series Documenting Process Calibrators comes with two sets of TL24 industrial test leads, two sets of AC20 test clips, one set of TP20 test probes, a BP7217 battery pack, a BC7210 battery charger, and an instruction manual. Every 743 and 702 includes a serial port cable and a DPC/TRACK Sample, including complimentary upload/export utility software. DPC/TRACK software includes software disks, an instruction manual, a serial port cable, and a DB9 to DB25 (9-pin to 25-pin) adapter.

Optional Accessories

Other Fluke test leads, probes and clips are also compatible with the Fluke 700 Series.

Ordering Information

Fluke-741 Documenting Process Calibrator
Fluke-743 Documenting Process Calibrator
Fluke-702 Documenting Process Calibrator
Fluke-701 Documenting Process Calibrator
DPC/TRACK Software

Visit us on the world wide web at:
http://www.fluke.com

All 700 series Documenting Process Calibrators are rugged, handheld tools for the calibration and troubleshooting of process control instrumentation. These new calibrators deliver all of the capabilities of previous 700 Series Documenting Process Calibrators:

- Calibrate temperature, pressure, voltage, current, resistance, and frequency
- Simultaneously measure and source
- Automatically capture calibration results
- Document procedures and results to meet ISO 9000, EPA, FDA, OSHA, and other government requirements
- Measure/simulate eleven types of thermocouples and eight RTDs
- Store up to 8,000 readings in data logging mode (743 only)
- Protected against dirt, dust, and moisture; unaffected by vibration
- PC interface (743 only)
- Five languages
- One and two-year calibration cycles
- Three-year warranty (one year for pressure modules)

The 741 and 743 calibrators bring even more power and flexibility to the instrument technician. Enhanced internal firmware now supports:

- Four types of built-in automated calibration procedures; linear transmitter, square root devices, one and two-point limit switches
- User entered values allow users to capture readings measured or sourced by other devices
- Custom units permit capturing data in measurement units not directly supported by the calibrator, e.g. ppm or rpm. Optional shunt supports mA/mA applications
- Built in calculator (four functions plus SQRT) permits readings to be recalled from the measurement function, or to store calculation results to a source function
- Autostep permits the calibrator to be used as a remote, continuously varying test source
- Programmable measurement delay supports slowly-responding instruments

Hardware improvements in the 741 and 743 include a high visibility yellow case, enhanced over-voltage terminal protection, improved mA source and measure performance, improved frequency source resolution, and operating temperature from -10°C to 50°C.

741/701: A complete documenting calibrator

The 741 and 701 are the economical choice for plants that don't use PCs or that require traditional paper forms. It has storage capacity for a day's calibration and measurement data. When you're back at the shop recall the data on screen to fill out calibration forms.

743/702: More memory, plus a PC interface and data logging

The 743 and 702 have all the capabilities of the 741 and 701 plus a PC interface that lets you download procedures, lists, and instructions created with software—or upload data for printing, archiving, and analysis. With its expanded memory, the 743 and 702 can hold a full week of calibrations and procedures.

DPC/TRACK software for instrumentation management

Manage your instruments and your calibration data with this easy-to-use instrumentation management database. Create calibration procedures, lists, and instructions on your PC and download them to the 743 and 702. Upload your calibration data back to your PC. Print reports or export data in standard ASCII format.

Safety Conformance

Compliant with IEC-1010.1, Over-voltage Category II, ANSI/ISA S82.01-94, CAN/CSA C22.2 No. 1010.1-92, EN61010-1-93.

Specifications

741/743

Function	Measure	Sourcing
DC voltage	0.025% reading + 0.005% full scale	0.01% output + 0.005% full scale
DC current	0.01% reading + 0.015% full scale	0.01% output + 0.015% full scale
Resistance	0.05% reading + 50 mΩ	0.01% output + 40 mΩ
Frequency	0.05%	0.01%
Thermocouples	0.3°C	0.2°C
RTDs	0.3°C	0.1°C
Pressure	To 0.05% of full scale. See specification sheet.	

Battery Life: Typically over eight hours **Internal Battery Pack:** NiCd, 7.2V, 1700 mAh
Battery Replacement: Via snap-shut door without opening calibrator; no tools required
Weight: 1.4 kg (3 lb 1 oz) **Size:** 130 x 236 x 61 mm (5.1" x 9.3" x 2.4")

700 Series Documenting Process Calibrators

700 Series Pressure Modules Specifications

Type	Model	Range and Resolution 1 Year	Typical Uncertainty 1 Year	Total Uncertainty Media	High Side Media	Low Side	Fitting Material	Max Over-pressure	Use with	
									701, 702	741, 743
Differential	FLUKE-700P01	10.000 in H_2O 2.500 kPa	0.10%	0.30%	Dry	Dry	316 SS	30 in. H_2O	●	●
Differential	FLUKE-700P02	1.0000 psi 7.0000 kPa	0.10%	0.30%	Dry	Dry	316 SS	3 PSI	●	●
Differential	FLUKE-700P22	1.0000 psi 7.0000 kPa	0.05%	0.15%	316 SS	Dry	316 SS	3 PSI	●	●
Differential	FLUKE-700P03	5.0000 psi 34.000 kPa	0.04%	0.10%	Dry	Dry	316 SS	15 PSI	●	●
Differential	FLUKE-700P23	5.0000 psi 34.000 kPa	0.02%	0.05%	316 SS	Dry	316 SS	15 PSI	●	●
Differential	FLUKE-700P04	15.000 psi 100.00 kPa	0.03%	0.07%	Dry	Dry	316 SS	45 PSI	●	●
Differential	FLUKE-700P24	15.000 psi 100.00 kPa	0.02%	0.05%	316 SS	Dry	316 SS	45 PSI	●	●
Gage	FLUKE-700P05	30.000 psi 200.00 kPa	0.02%	0.05%	316 SS	N/A	316 SS	90 PSI	●	●
Gage	FLUKE-700P06	100.00 psi 700.00 kPa	0.02%	0.05%	316 SS	N/A	316 SS	300 PSI	●	●
Gage	FLUKE-700P07	500.00 psi 3450.0 kPa	0.05%	0.05%	316 SS	N/A	316 SS	1500 PSI	●	●
Gage	FLUKE-700P08	1000.0 psi 7000.0 kPa	0.02%	0.05%	316 SS	N/A	316 SS	3000 PSI	●	●
Gage	FLUKE-700P09	1500.0 psi 10000 kPa	0.02%	0.05%	316 SS	N/A	316 SS	3000 PSI	●	●
Absolute	FLUKE-700PA3	5.0000 psi 34.000 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	15 PSI		●
Absolute	FLUKE-700PA4	15.000 psi 100.00 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	45 PSI		●
Absolute	FLUKE-700PA5	30.000 psi 200.00 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	90 PSI		●
Absolute	FLUKE-700PA6	100.00 psi 700.00 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	300 PSI		●
Vacuum	FLUKE-700PV3	-5.0000 psi -34.000 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	15 PSI		●
Vacuum	FLUKE-700PV4	-15.000 psi -100.00 kPa	Late 1996	Late 1996	316 SS	N/A	316 SS	45 PSI		●
Dual	FLUKE-700PD2	±1.0000 psi ±7.0000 kPa	0.07%	0.20%	316 SS	Dry	316 SS	5 PSI	●	●
Dual	FLUKE-700PD3	±5.0000 psi ±34.000 kPa	0.03%	0.07%	316 SS	Dry	316 SS	15 PSI	●	●
Dual	FLUKE-700PD4	±15.000 psi ±100.00 kPa	0.03%	0.07%	316 SS	Dry	316 SS	45 PSI	●	●
Dual	FLUKE-700PD5	-15/30.000 psi -100/200.00 kPa	0.03%	0.07%	316 SS	N/A	316 SS	90 PSI	●	●
Dual	FLUKE-700PD6	-15/100.00 psi -100/700.00 kPa	0.03%	0.07%	316 SS	N/A	316 SS	300 PSI	●	●
Dual	FLUKE-700PD7	-15/200.000 psi -100/1400.00 kPa	0.03%	0.07%	316 SS	N/A	316 SS	600 PSI	●	●
High	FLUKE-700P29	3000.0 psi 20000 kPa	0.04%	0.10%	C276	N/A	C276	6,000 PSI	●	●
High	FLUKE-700P30	5000.0 psi 34500 kPa	0.04%	0.10%	C276	N/A	C276	10,000 PSI	●	●
High	FLUKE-700P31	10000 psi 70000 kPa	0.04%	0.10%	C276	N/A	C276	15,000 PSI	●	●

Total uncertainty, % of full span for temperature range 0 to +50°C, one year interval.
Total uncertainty, 1.0% of full span for temperature range -10 to 0°C, one year interval.
Use of pressure zero is required prior to measurement or source. (For 701/702, internal software Version 1.3 or later is required.)
Pressure units available in the 701/702 are: psi, kPa, bar, mmHg, in. H_2O (@ 20°C), ft.H_2O (@ 20°C)
Additional pressure units available in the 741/743 are kg/cm2, in. H_2O (@ 60°F), mm. H_2O(@ 20°C)
Maximum overpressure specification includes common mode pressure.
Modules are CE rated.
Metric adapter(s): ¼" NPT female to male ¼ - 19 7/1 BSP/ISO tapered included with all modules except P29, P30, and P31.
All modules ship with a NIST traceable certificate and final test data.

Specifications

(Model 702 for 1 year)

Feature	Measure	Sourcing
DC voltage	0.025% reading + 0.005% full scale	0.010% output + 0.005% full scale
DC current	0.025% reading + 0.025% full scale	0.01% output + 0.04% full scale
Resistance	0.05% reading + 50 mΩ	0.01% output + 40 mΩ
Frequency	0.5%	0.1%
Thermocouples	0.3°C	0.2°C
RTDs	0.3°C	0.1°C
Pressure	To 0.05% of full scale. See spec sheet.	

Battery Life: Typically over eight hours **Internal Battery Pack:** NiCd, 7.2V, 1700 mAh
Battery Replacement: Via snap-shut door without opening calibrator; no tools required
Weight: 1.4 kg (3 lb 1 oz) **Size:** 130 x 236 x 61 mm (5.1" x 9.3" x 2.4")

620 LAN CableMeter®

The One-Person LAN Cable Verification Tool

Fluke's 620 CableMeter® is the only instrument on the market today that can test each connection "as you go," without the need for a remote unit termination or connector at the other end of the cable. Even before the far end of the cable has been connected or terminated, the technician can verify that the completed connection or termination is wired correctly. This reduces both time and costs during the final cabling plant certification.

Using a Fluke 620, the installer can immediately verify that end-to-end connectivity is defect-free, in all category UTP LAN cables and hardware, as well as STP, FTP, and Coax types. From one end, the 620 can detect (1) an open circuit and the length to this open (including each pair in a twisted pair LAN cable); (2) a short, and the distance to the short circuit; (3) a split pair condition (showing the actual pairing detected). If the cable plant requires "certification," the final performance test will not be impeded by miswires, shorts or opens. The installer will have corrected the problems immediately, saving troubleshooting and fault isolation time.

Verify Cable Routing

By attaching Fluke's optional "cable identifier" to a completed LAN connection, the installer can use the 620 to verify the cable routing and cable label. In addition, using the cable identifier, the installer can detect two additional miswire possibilities: (1) a polarity reversal in a pair, and (2) transposed.

Operation

Use the SETUP button to select the cable type, (e.g. 10Base-T, 2 pair), wiring standard, cable category and wire gauge of the cable to be tested. The setup menu allows the user to:

- Select from English, French, German, Italian, Spanish, or Japanese language display
- Select desired units of length (feet or meters)
- Enable or disable the audible pass/fail sound
- Adjust the display contrast
- Calibrate the meter to a specific type/make of cable

The rotary selection switch offers three modes of operation:

(1) TEST provides a **pass/fail report** on the cable under test. It tests the cable as explained in the table. In case a failure has been detected, the display offers additional diagnostic information.

(2) LENGTH provides the length of each pair (in case a twisted pair cable is being tested).

(3) WIRE MAP provides the detailed wiring for the cable.

Accessories and Ordering Information

Included Accessories

One Cable Identifier (#1), soft carrying case, user manual, quick reference card, warranty registration card, one patch cord (RJ45-to-RJ45 EIA/TIA 4 pair cat 5), and one RJ45-to-RJ45 female coupler.

Optional Accessories

N6201 Cable Identifiers #2 - #4
N6202 Cable identifiers #5 - #8
N6203 STP (IBM Type 1) Cable kit
Kit contains: IBM Data Connector to DB9 male cable (IBM type 1, 3 ft/1m); IBM Data Connector to RJ45 adapter.

Ordering Information

Fluke 620 CableMeter®

Visit us on the world wide web at:
http://www.fluke.com

Features

- One person verifies each connection as he goes
- Test all LAN cable types: UTP, STP, FTP, Coax
- Two, three, or four wire pairs in twisted pair cables
- Detects wiring problems: open, short, crossed-, reversed-, split pair
- Locates wiring/connection errors (distance to the open or short)
- Measures cable length
- Ease-of-use: single rotary knob to select the test
- Portable, long battery life (50 hours)

Specifications

Length
Range: 1 to 999 ft, or .5 to 300m
Resolution: 1 foot or .5m
Accuracy: 5% 3 ft, or 5% 1m
Display: feet or meters
Power
Two AA size 1.5 Volt alkaline batteries
Battery Life: 50 hours of continuous operation, not including backlight consumption.
Automatic Power Management Feature: Provides several months of operation with one set of batteries under normal use.
Input Protection: The inputs withstand telephone ringing and loop voltages. The instrument warns the user with an "Active Cable" message and an audible warning tone.
Size: 18.4 cm L x 9.8 cm W x 4.6 cm D (7.25" L x 3.87" W x 1.8" D)
Weight: 354g (12.5 oz)
1 Year Warranty

610 LAN CableMapper®

FLUKE ®

The One-Button Answer

The Fluke 610 CableMapper® is designed to find all UTP termination faults at the touch of a button and detect split pairs-something no other wiremapper can do.

Unique Cable Identification Function

Cable identifiers simply plug into a termination point-such as the telecommunication wall outlet in an office. Then, connect the 610 to the other termination point-in the wiring closet, for example. The 610 will automatically display the unique ID number of the identifier plugged in. Each 610 includes one free Cable identifier. Sets of additional identifiers are available as options.

Features

- 610 CableMapper® determines UTP termination faults per LAN cabling standard EIA/TIA 568 for Ethernet and Token Ring LANs
- Split pair identification measures Near-end Crosstalk (NEXT) @ 10 MHz
- Fault codes and cable identifier number indicated directly on front panel
- Bright LEDs signify pass (green) or fail (red) for each pair
- Lightweight, handheld design for portability
- Handy carrying case organizes 610, Cable Identifiers and manual
- Protective holster

Split Pair Identification

Twisted pair cables for data communication (transmissions at frequencies greater than 1 MHz) are susceptible to Near End Crosstalk ("NEXT"). NEXT occurs when information "leaks" from one pair to another, corrupting data as it is sent or received. The NEXT characteristic depends on the cable's construction—the number of twists per foot, consistency of the twist rates, and physical connections and terminations.

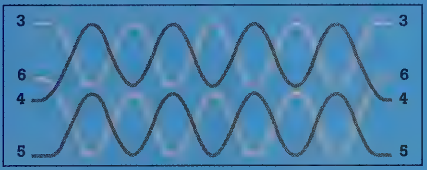
Twisted pair wires must be connected to the proper pins in the cable's connectors or termination blocks. Simple end-to-end continuity between pins is not sufficient for data communication. To verify proper connectivity, NEXT should be measured over a wide range of frequencies.

In addition to continuity checks, the Fluke 610 measures the NEXT of the cable installation at one frequency (10 MHz) to determine whether the cable is properly connected or terminated. The 610 reports a split pair when NEXT exceeds 21 dB (±3 dB) at 10 MHz.

The Fluke 610 measures the electrical parameter which is the cause of crosstalk; it measures and verifies that the mutual capacitance between paired wires is in balance.

Split pair wiring errors: Errors occur when connector pins which are supposed to be connected to a twisted pair for transmission, are instead connected to wires that are not twisted together in a pair. In the example below, the cable exhibits correct pin-to-pin continuity, but will likely cause transmission errors. A balanced circuit uses one wire from one pair and the other wire from a different pair. Excessive crosstalk will result because the transmission circuit is split between two twisted pairs.

When using proper data grade cable, split pairs occur as a result of miswires; the use of inappropriate cables, such as "silver satin" cable, will result in excessive crosstalk and may be diagnosed by cable testers as a split pair failure.



Accessories and Ordering Information

Included Accessories

One Cable Identifier (#1), soft carrying case, User Manual, Warranty registration card, and N6103 Cable kit: One 24" patch cable RJ45-to-RJ45; Two RJ45-to-RJ45 female couplers

Optional Accessories

N6101 Cable Identifiers #2, #3, #4
N6102 Cable Identifiers #5, #6, #7, #8

Ordering Information

610 LAN CableMapper®

Visit us on the world wide web at:
http://www.fluke.com

Specifications

Cable Length: 0 to 122m (0 to 400 ft.)
Identifies opens, shorts, reversed pairs or crossed pairs, and other miswires.
Split pair detection: Pairs are checked at 10 MHz and reported if crosstalk exceeds 21 dB ±3 dB.
Input Connector: RJ-45
Input Protection: Inputs withstand telco ringing and loop voltages. Display alarms on overvoltage faults.
Display: Single 16-segment character display; Four fault (red) LEDs; Four no fault (green) LEDs
Keyboard: One tactile-feedback momentary switch Power
Power: CableMapper: one 9 volt alkaline battery
Cable Identifier: None
Low power indication on the display
Typical Battery Life: 1500 tests Size
Size: CableMapper: 9.4 cm L x 7.2 cm W x 3.5 cm D (3.7" L x 2.8" W x 1.3" D)
Cable Identifier: 6.1 cm L x 2.8 cm W x 1.3 cm D (2.4" L x 1.1" W x 0.5" D)
Weight: CableMapper: 0.18 kg (6.3 oz)
Cable Identifier: 0.02 kg (0.5 oz)
1 Year Warranty

FLUKE ®

51/52 Series Digital Thermometers

High Accuracy, High Performance Temperature Measurements

The Fluke 50 Series combines Fluke's technical expertise in low-cost handheld test instruments and laboratory-grade benchtop temperature instruments to create one of the most advanced, yet affordable, handheld thermometer lines in the industry. The Fluke 51 and 52 offer high accuracy, high performance and simple operation.

- Works with Type-K or J thermocouples
- Operator can select readout in °C or °F
- Reading HOLD button freezes display for viewing convenience
- Wide variety of interchangeable thermocouple probes
- 0.1°C (0.2°F) resolution over entire measurement range of instrument
- Scan Mode (Fluke 52 only); a unique feature for continuous scanning through a measurement sequence
- Differential Mode (Fluke 52 only); ideal for measuring input-output temperature changes (T_1-T_2), and trend information
- Min/Max Recording Mode (Fluke 52 only)

Safety Conformance

Class III as defined in IEC 348.

Features

	51	52
User Selectable °C or °F	●	●
1°C or 0.1°C (1°F or 0.2°F) Resolution - Internal Jumper	●	●
Push-button Selectable Resolution		●
J- or K-Type Thermocouples	●	●
Single Thermocouple Input	●	
Dual Thermocouple Input		●
Wide Variety of Interchangeable Thermocouple Probes	●	●
READ Hold	●	●
Self Test	●	●
Differential Temperature (T_1-T_2)		●
SCAN Function (T_1, T_2, T_1-T_2,. . .)		●
MIN/MAX Record		●

Accessories and Ordering Information

Included Accessories

A general purpose 80PK-1 bead thermocouple is included with each Fluke 51; two 80PK-1 bead thermocouples are included with the Fluke 52; battery, operator's manual.

Optional Accessories

See Accessories Compatibility Guide on pages 44-46.

Ordering Information

51 Digital Thermometer
52 Digital Thermometer

Visit us on the world wide web at:

http://www.fluke.com

Specifications

For operating temperatures from 18°C to 28°C.
Temperature measurement range:
K-Type Thermocouples –200°C to +1370°C (-328°F to +2498°F)
J-Type Thermocouples –200°C to +760°C (-328°F to +1400°F)

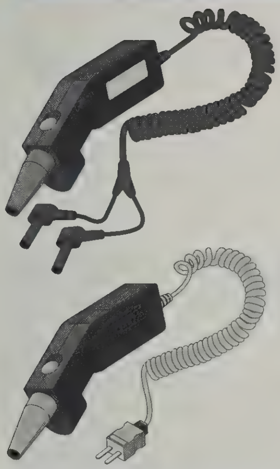
	Accuracy ± (% of Reading + °C)		Accuracy ± (% of Reading + °F)	
Model	**Type K**	**Type J**	**Type K**	**Type J**
51 or 52	(0.1%+ 0.7°C)	(0.1%+ 0.8°C)	(0.1%+ 1.3°F)	(0.1%+ 1.4°F)
52 only* T_1-T_2	(0.1%+ 1.0°C)	(0.1%+ 1.2°C)	(0.1%+ 1.8°F)	(0.1%+ 2.2°F)

*Typical accuracy only to T_1 minus T_2 temperature

Battery Life: 800 hours typical, 9V.
Size: 166 mm L x 75 mm W x 28 mm D (6.55" L x 2.95" W x 1.12" D).
Weight: 280 g (10 oz).
Three Year Warranty: One year calibration interval.

Temperature Accessories

Non-Contact Infrared TemperatureProbes



Ideal for Maintenance Applications
80T-IR (for all DMMs),
80PK-IR (for Thermometers only)

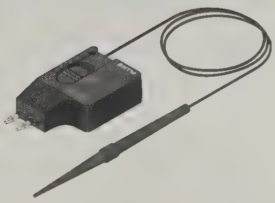
- Instantly measures temperature from -18°C to 260°C (0 to 500°F) without contact
- Ideal for maintenance applications where object to be measured is hazardous to touch, is moving, easily contaminated, or difficult to reach
- Highly repeatable readings
- Senses and converts infrared energy emitted from an object into a signal readable on a DMM or Digital Thermometer display
- Results displayed in °C or °F: 1 mV dc per °C or °F output
- Automatic shut-off after 10 minutes of operation saves battery life

Specifications

Temperature Range: -18°C to 260°C (0°F to 500°F)
Accuracy: ±3% of reading or ±3°C (±5°F), whichever is greater, 18°C to 28°C (64°F to 82°F) ambient operating temperature
Temperature Coefficient: 0.2% of reading or ±0.2°C (±0.3°F), whichever is greater, change in accuracy per degree change in ambient temperature above 28°C (82°F) or below 18°C (64°F)
Response Time: 1 second
Emissivity: Fixed at .95
Output: 80PK-IR, Type-K thermocouple mini-connector 80T-IR: 1 mV per °C or °F (Switchable)
Operating Temperature: 0°C to 65°C (32°F to 150°F)
Resolution: 1°C or °F
Optical Resolution: 4:1 distance to target ratio
Power: 9V battery
Size: (L x W x H) 180 mm x 30 mm x 50 mm (7.1" x 1.2" x 2")
Weight: 286g (6.4 oz)
Compatibility:
80PK-IR: Any Type-K thermometer or other temperature measuring device that accepts Type-K mini-connector inputs.
80T-IR: Any DMM with 10 MΩ input impedance, standard diameter banana jacks, and mV dc capability.

All accessories have a full 1-year warranty.

80T-150U Universal Temperature Probe



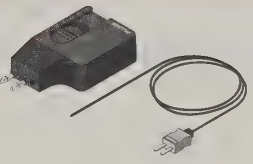
Compatible with all Fluke and most popular DMMs.

- High accuracy temperature probe suitable for air, surface, and non-corrosive liquids
- For low voltage environments (under 24V ac, 60V dc)
- Fast responding
- Switch selectable for °C or °F
- Standard 9V battery
- Battery test instructions included

Specifications

Electrical Protection: 350V dc or peak ac (for electronics applications)
Range: -50°C to 150°C (-58°F to 302°F), cable 70°C (160°F) maximum
Output to Meter: 1 mV per °C or °F
Resolution: 0.1°C or 0.1°F on the mV range of a 3½-digit DMM
Accuracy: ±1°C (1.8°F), 0°C to 100°C (32°F to 212°F), decreasing linearly to ±3°C (5.4°F) at -50°C and +150°C (including nominal 0.25% voltmeter error)

80TK Thermocouple Module



Compatible with any DMM having 10MΩ or greater input impedance and a mV dc scale.

- Converts any Fluke DMM and most popular DMMs to a thermometer via standard banana plugs.
- Uses Type-K thermocouples with mini-connectors
- Switch selectable for °C or °F
- Use with interchangeable 80PK-1 through 80PK-8 probes (one 80PK-1 Bead Probe included, shown on page 34)
- 9V battery, battery test feature
- For low voltage environments (under 24V ac, 60V dc)

Specifications

Measurement Range: -50°C to 1000°C (-58°F to 1832°F), depending on thermocouple probe used.

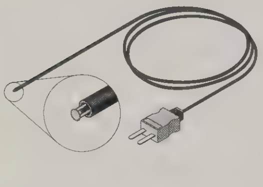
Accuracy:

-50°C to -20°C: 2.5% ± 2°C	350°C to 500°C: 1.75% ± 2°C
-58°F to -4°F: 2.5% ± 3.6°F	662°F to 932°F: 1.75% ± 3.6°F
-20°C to 350°C: 0.5% ± 2°C	500°C to 1000°C: 2% ± 2°C
-4°F to 662°F: 0.5% ± 3.6°F	932°F to 1832°F: 2% ± 3.6°F

Interchangeable Temperature Probes for the 80TK and 51/52 Digital Thermometers

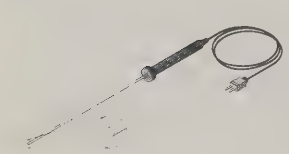
Type-K Temperature Probes with Mini-Connectors

Fluke offers a versatile selection of interchangeable Type-K Thermocouple probes to fit a variety of applications. All of the probes on this page are compatible with the 80TK (for use with DMMs), with the 51/52 Digital Thermometers and with other measuring instruments that accept mini-connectors and Type-K thermocouple probes.



80PK-1 Bead Probe

For general purpose applications, Teflon tape insulation. Not suitable for liquid immersion. Shipped with the 80TK, Fluke 50 Series. Measurement range: -40°C to 260°C (-40°F to 500°F). Accuracy: ±1.1°C (2.0°F) over the range of 0°C to 260°C (32°F to 500°F). Maximum Temperature of Insulation: 260°C (500°F).

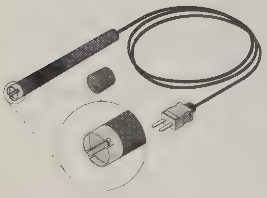


80PK-2A Immersion Probe

For liquids and gels. Protected from tip to handle by an Inconel sheath. Suitable for most general temperature measurement applications. Measurement range: -196°C to 1090°C (-320°F to 1994°F). Maximum Temperature of Cable: 105°C (220°F); of Handle: 125°C (257°F).

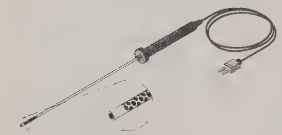
Accuracy Table for 80PK-2A

Range	Max. Error
-196°C to -110°C (-320°F to -166°F)	± 4% of reading
-110°C to -40°C (-166°F to -40°F)	± 4.4°C (7.92°F)
-40°C to -275°C (-166°F to -327°F)	± 2.2°C (3.96°F)
275°C to 1090°C (527°F to 1994°F)	± 0.75% of reading



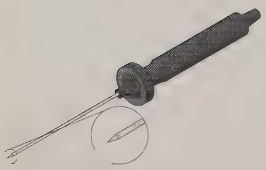
80PK-3A Surface Probe

For flat or slightly convex surfaces. Ideal for measurement of hot rollers and plates. Measurement range: 0°C to 260°C (32°F to 500°F). Accuracy: ±2.2°C (3.96°F) over the range of 0°C to 260°C (32°F to 500°F). Maximum Temperature of Cable: 105°C (220°F); of Handle: 105°C (220°F).



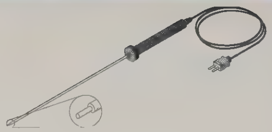
80PK-4A Air Probe

For air and gases. Measuring bead is protected by perforated stainless steel baffle. Not for immersion in liquid. Restrictions: The 304 stainless steel baffle cannot be exposed to halides or sulfides. Measurement range: -196°C to 816°C (-320°F to 1500°F). Accuracy: see accuracy table next column. Maximum Temperature of Cable: 105°C (220°F); of Handle: 125°C (257°F).



80PK-5A Piercing Probe

Made of 316 stainless steel suitable for food service. Also suitable for liquids and gels. Restrictions: The 316 stainless steel cannot be exposed to halides or sulfides. Measurement range: -196°C to 816°C (-320°F to 1500°F). Accuracy: see accuracy table next column. Maximum Temperature of Cable: 105°C (220°F); of Handle: 65°C (150°F).

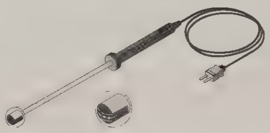


80PK-6A Exposed Probe

Exposed bead attached to 6-inch sheath, designed for general purpose, air and gas measurements. Restrictions: The 304 stainless steel shaft cannot be exposed to halides or sulfides, or to reducing atmospheres or a vacuum. Measurement range: -196°C to 816°C (-320°F to 1500°F). Accuracy: see accuracy table. Maximum Temperature of Cable: 105°C (220°F); of Handle: 125°C (257°F).

Accuracy Table for 80PK-4A, 80PK-5A, 80PK-6A

Range	Max. Error
-196°C to -110°C (-320°F to -166°F)	± 4% of reading
-110°C to -40°C (-166°F to -40°F)	± 4.4°C (7.92°F)
-40°C to 275°C (-40°F to 527°F)	± 2.2°C (3.96°F)
275°C to 816°C (527°F to 1500°F)	± 0.75% of reading

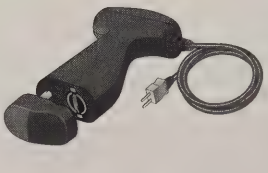


80PK-7 Industrial Surface Probe

Performs surface measurements in rugged environments over a wide temperature range. Measurement range: -127°C to 600°C (-196°F to 1112°F). Made of 303 stainless steel, with a state-of-the-art ribbon sensor for extra durability. Maximum Temperature of Cable: 105°C (220°F); of Handle: 125°C (257°F).

Accuracy Table for 80PK-7

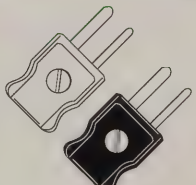
Range	Max. Error
-127°C to 0°C (-196.6°F to 32°F)	± 4.4°C (7.92°F)
over 0°C to 225°C (32°F to 437°F)	± 2.7°C (4.9°F)
over 225°C to 600°C (437°F to 1112°F)	± 1.2%



80PK-8 Pipe Clamp Temperature Probe

Produces fast and accurate temperature and superheat measurements of pipe surfaces from 6.4 mm (¼") to 34.9 mm (1⅜") diameter. Easy-to-use clamp, attached 1.2 meter (4-foot) cable, and rugged ribbon sensor give more accurate measurements (in nearly any location) than a bead or surface probe. Measurement range: -29°C to 149°C (-20°F to 300°F). Accuracy: ± 1.9°C (±3.4°F). Maximum temperature of cable: 105°C (220°F); of handle: 149°C (300°F). Uses standard Type K thermocouple mini-connector.

Mini-Connectors for 80TK and 51/52



80CK-M Male Mini-Connector (Type-K)

80CJ-M Male Mini-Connector (Type-J for 50 Series Only)

Package of two male mini-connectors for use with Fluke 80TK or Fluke 50 Series. Isothermal screw terminals for attachment of Type-K or Type-J thermocouple wire. Accepts a maximum size of 20 gauge thermocouple wire.

Current Clamps

Precision Designed For Measurements With Oscilloscopes and Power Meters

80i-500s

80i-1000s

80i-110s

Accurate current measurements are critical to resolving power quality problems in commercial and industrial power distribution systems. Fluke now offers two clamp-on ac current probes and one ac/dc current probe that boost the performance of any oscilloscope or voltage input device capable of millivolt measurements.

80i-500s

- An included accessory for the Fluke 39 and 41B Power Meters and an optional accessory for Fluke ScopeMeter® test tools
- AC current capacity of up to 500A rms, with best accuracy of 2% from 45 Hz to 65 Hz

80i-1000s

- An optional accessory for the Fluke 39 and 41B Power Meters and for Fluke ScopeMeter® test tools
- Measures ac current from 100 mA to 1000A rms continuous (2000A instantaneous peak)

80i-110s

- An optional accessory for the Fluke 39/41B and for Fluke ScopeMeter® test tools
- Measures ac and dc current in 2 ranges from 0 to 100A. The best accuracy is 3% and frequency response is dc to 100 kHz.

Safety designed

Both the 80i-500s and 80i-1000s are rated for 600V ac circuits of Overvoltage Category III (and 300V ac circuits of Overvoltage Category IV), per IEC 1010.

The 80i-110s is rated for 600V circuits of Overvoltage Category II and 300V circuits of Overvoltage Category III, per IEC 1010.

Specifications

	80i-500s	80i-1000s	80i-110s
AC Current Ranges	1A to 500A AC rms (to 700A rms for maximum of 10 minutes)	0.1A to 1000A continuous (2000A instantaneous peak)	0A to 100A DC & AC rms continuous (140A instantaneous peak) 2 Ranges: 0-10A & 0-100A
Accuracy	100A to 500A, ±2% of reading; 20A to 100A, ±5% of reading; 1A to 20A, ±5% of reading + 0.3A	0.5A to 1000A, 2% of reading; 0.1A to 10A, 3% of reading ±100 mA	0A to 100 A, 3% of reading, DC to 5 kHz, 12% of reading above 20 kHz
Usable Frequency Range (with current derating)	5 Hz to 10 kHz	5 Hz to 100 kHz	DC to 100 kHz
Working Voltage	600V AC rms clamp jaws to ground	600V AC rms clamp jaws to ground	600V rms clamp jaws to ground
Common Mode Voltage (Float Voltage)	600V AC rms at output cable and connector to ground	600V AC rms at output cable and connector to ground	600V DC or AC at output cable and connector to ground
Maximum Conductor Diameter	30mm (1.18") (2 x 500 MCM THHN)	54mm (2.13") (2 x 500 MCM THHN)	11.8mm (0.46")
Output Levels	1 mV/Amp	1mV/Amp, 10mV/Amp and 100mV/Amp	10mV/Amp and 100 mV/Amp
Output Cable	1.6m (63") BNC termination. Cable and BNC rated to 600V AC rms for enhanced safety	1.6m (63") BNC termination. Cable and BNC rated to 600V AC rms for enhanced safety	1.6m (63") BNC termination. Cable and BNC rated to 600V rms for safety
Size	196mm L x 66mm W x 33mm D (7.7"L x 2.6"W x 1.3"D)	206mm L x 105mm W x 48mm D (8.1"L x 4.1"W x 1.9"D)	36mm H x 231mm L x 67mm W (1.4"H x 9.1"L x 2.64"W)
Weight	420 g (14.8 oz.)	650 g (1.43 lb)	330 g (0.6 lb)
Warranty	1 year	1 year	1 year

Accessories and Ordering Information

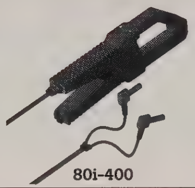
Ordering Information

80i-500s	AC Current Probe for Oscilloscopes
80i-1000s	AC Current Probe for Oscilloscopes
80i-110s	AC & DC Current Probe for Oscilloscopes

Current Clamps

DMM Current Clamp Selection Guide*

Construction

	AC Only Models			AC or DC Models	
*Current Clamps must be used with true-rms meters to make true-rms measurements. **Model**	**Y8101A**	 **80i-400**	**80i-600A**	**80i-410**	**80i-1010**
Material	ABS	Rugged, glass filled polycarbonate	ABS nickel iron core	Rugged, glass filled polycarbonate	Rugged, glass filled polycarbonate
Type	Current Transformer 1000:1	Current Transformer 1000:1	Current Transformer 1000:1	Hall sensor	Dual Hall sensor
Jaw Size Maximum Conductor Size THHN	#2 AWG	750 MC or 2 x 500 MCM	1000 MCM	750 MCM or 2 x 500 MCM 2.5" X 0.2" Bus Bar	750 MCM or 2 x 500 MCM 2.5" X 0.2" Bus Bar
Diameter	11.1 mm (.43")	33 mm (1.25")	50 mm (2.0")	33 mm (1.25")	33 mm (1.25")

AC Current

Lowest Current	2A ±0.175A	1A ±0.43A (Useable to 0.1A)	Best 1A ±0.02A (Useable to 0.1A)	5A (Useable to 2A)	1A
Highest Current	150A ±3.9A	400A ±12.4A (600A for 5 sec.)	Best 600A ±12A (2000A for 5 sec.)	400A (Useable to 600A)	700A
Best AC Accuracy (mid band & mid range)	±(2.5% of reading + 0.15A)	±(3% of reading + 0.4A)1	±2% reading	±(5% of reading + 2.5A)[1]	±(2% of reading + 1A)
Frequency Response (-3 dB typical)	10 kHz	5 kHz	10 kHz	1.2 kHz	6 kHz

DC Current

DC Range	NA	NA	NA	5-400A	1 to 1000A
Best DC Accuracy	NA	NA	NA	±(5% of reading + 2.5A)	±(2% of reading + 1A)
Zero Error Adjustment	NA	NA	NA	No	Yes – Thumbwheel

General

Output Levels	1mA/Amp	1mA/Amp	1mA/Amp	1mV/Amp	1mV/Amp
Electrical Noise Immunity 2	Good	Good	Good	Average	Not Recommended
Working Voltage	300V	660V	750V	480V	660V
Common Mode Voltage	42V dc or 30V ac	42V dc or 30V ac	42V dc or 30V ac	42V dc or 30V ac	42V dc or 30V ac
Battery Life (typical)	NA	NA	NA	600 hrs	200 hrs.

1) Measurement accuracy affected by conductor position in jaw.

2) Adjustable Frequency Motor Drives (AFMDs) (See also Fluke 39 and 41B Power Meters, pages 20 and 21). Some AFMD outputs generate electrical noise. The best results for drive output current measurements are obtained using ac only clamps. Recommended models include Y8101A, 80i-400, and 80i-600A DMM accessories, or Models 31, 32 or 33 current clamps. Frequency measurements on drive output current are best made with Model 31 or 33. Drive input currents often contain harmonics requiring a true-rms instrument.

All accessories have a full 1-year warranty.

Current Clamps

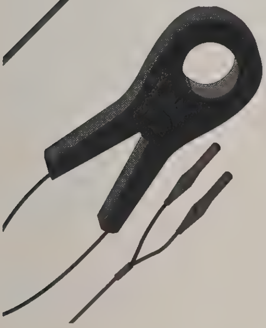
Clamp-On AC Current Clamps

Y8101A Clamp-On AC Current Probe

(Factory Mutual Approved)
Measures ac current from 2A to 150A. Output to meter is 1 mA/Amp ac. (Division ratio is 1000 to 1.) Clamps over conductors. 11 mm (43") in diameter. New straight, safety-shrouded plugs. Accuracy: ±(2.5%+0.15A) 48 Hz to 440 Hz, ±(3%+0.15A) 440 Hz to 1200 Hz.

80i-400 Clamp-On AC Current Probe

(Factory Mutual Approved)
Measures ac current from 1A to 400A. Output to meter is 1 mA/Amp ac. (1000 to 1 division ratio.) Maximum conductor size: one 30 mm (1.18") or two each 25 mm (0.98"). Accuracy: ±(3%+0.4A) from 48 Hz to 1000 Hz.



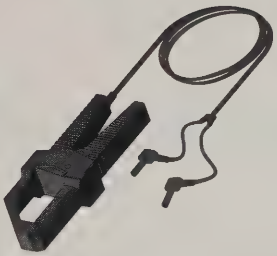
80i-600A Clamp-On AC Current Probe

(Factory Mutual Approved)
Measures ac current from 1A to 600A. Output to meter is 1 mA/Amp ac. (Division ratio is 1000 to 1.) Maximum conductor size 50 mm (2") in diameter. New straight, safety-shrouded plugs. Accuracy: ±2% of reading, 50 Hz to 1 kHz; ±3% (typical) 30 Hz to 50 Hz or 1 kHz to 10 kHz.

Clamp-On AC/DC Current Clamps

80i-410 AC/DC Current Clamp

Battery-powered, Hall-effect, clamp-on probe measures ac or dc current from 5A to 400A. Maximum conductor size: one 1.18" (30mm) or two each 0.98" (25 mm). Output is 1mV per amp dc or ac. Accuracy: ±(5%+2.5A), 5A to 400A, dc to 62 Hz. Useable to 400 Hz.



80i-1010 AC/DC Current Clamp

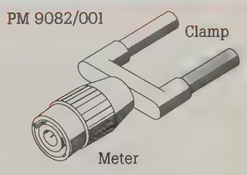
Battery-powered dual Hall-effect, clamp-on probe measures ac current to 700A, dc current to 1000A. Thumbwheel ZERO control compensates for residual core magnetism, improving the range of dc measurements down to 1A. Output is 1mV per amp dc or ac. Maximum conductor size: one 1.18" (30 mm) or two each 0.98" (25 mm). Accuracy: ±(2% of reading + 1A), 1A to 100A, dc to 62 Hz; ±3%, 100A to 700A, dc and 48 Hz to 62 Hz; ±5%, 700A to 1000A dc only. Useable to 440 Hz.

All accessories have a full 1-year warranty

Adapters

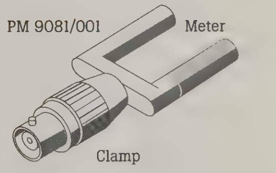
PM 9081/001 Adapter

Safety Designed Dual Banana Plug to Female BNC Adapters: 80i-100s/500s/1000s to 80 Series, 860 Series (GMM)



PM9082/001 Adapter

Safety Designed Dual Banana Jack to Male BNC Adapters: 80i-400/600A/410/1010 to ScopeMeter, 39/41B Harmonics Meter



Each set consists of two adapters. One red (signal) and one black (ground) 4 mm (.15") banana contact.

Maximum voltage to ground: 600V rms.
Maximum signal voltage: 300V rms.

TL24 and TL22 Interchangeable Test Lead Accessories

The best meter in the world is of no use if you can't make a proper test connection. Fluke's interchangeable test lead accessories offer a wide variety of clips and probes.

- 385 internal strands for flexibility prevent kinks and bends in test leads; superior strain relief is also provided
- Silicone-insulated; won't crack from cold, or melt from accidental contact with soldering iron
- Safety-designed with double insulation for added protection
- All metal on banana plugs is capped and shrouded to prevent accidental contact
- Compatible with all meters accepting safety-shrouded, standard-sized banana plugs

Test Probes and Clips

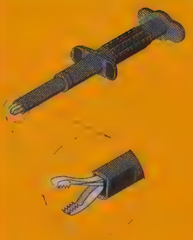
- Made from a combination of high quality steel and Polyamid plastic bodies for exceptional durability
- Safety-grip clips keep your hand a safe distance from test connections—easy to use, even when wearing gloves

TL22 & TL24 Flexible Test Leads

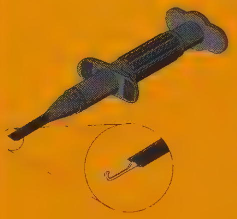
TL22: Shrouded right-angle connector on both ends

TL24: Same as TL22 except that one end has a shrouded, straight connector.
Compatible with all DMMs that accept safety-shrouded- standard-diameter banana plugs. TL22 or TL22 includes one red and one black lead.
Silicone-insulated test leads have superior flexibility and cold/heat resistance from -80°C to +150°C (-112°F to +302°F). Withstands short exposure to soldering irons. Good chemical and tear resistance. Shrouded right-angle connectors on both ends. 1.6m (63"). 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010) 10A rating. One red, one black. UL 1244 Listed.

Recommended Clips for TL22 and TL24 Test Leads

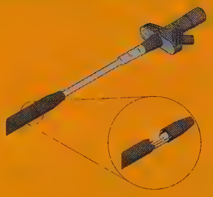


AC20 Industrial Test Clips
Safety-grip, spring-loaded alligator clips with a wide 20 mm (.787") jaw opening. 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010-1), 10A rating. One red, one black. UL 1244 Listed.

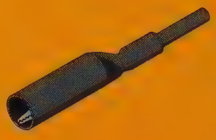


AC80 Hook-Style Test Clips
Safety-grip, spring-loaded clips with hook grip. Hook size is 10 mm x 2 mm (.400" x .080"). 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010-1), 3A rating. One red, one black.UL 1244 Listed.

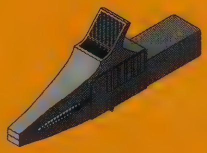
AC83 Pin-Grabber Test Clips
Safety-grip, spring-loaded pin-grabber hooks for use with test points in close contact areas. Flexible shaft is 100 mm (4"), grabber extends 9.5 mm (.375"). 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010-1), 1A rating. One red, one black. UL 1244 Listed.



AC89 New Insulation Piercing Clip
Pierces 30 (.25 mm2) to 14 AWG (1.5 mm2) insulated wires with an extremely small, hardened pin, to allow for maximum self-healing of the insulation. 250V, 5A rating. A single probe per package. (For use only with shrouded test leads having standard diameter banana plugs.)



AC75 Banana Jack-Alligator Clips
Insulated alligator clips with banana jacks. Standard 8 mm (.313") jaw opening. Included with test lead sets Y8133 and Y8134, and compatible with test leads Y8131, Y8132, and TL24. 1000V, 10A rating. Two red, two black.

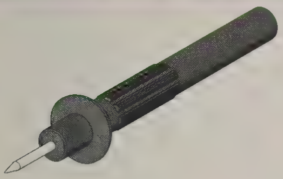


AC85A Large Jaw Alligator Clips
Fully insulated banana-jack alligator clips. Extra strong teeth and new spring design provide superior grip. Extremely rugged. Large 20 mm (.787") opening. 600V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010-1), 10A rating. One red, one black. UL 1244 Listed.

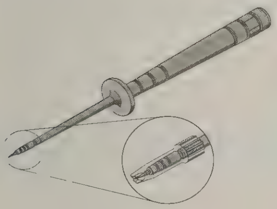
All accessories have a full 1-year warranty

Test Leads, Probes & Clips

Recommended Probes for TL22 and TL24



TP20 Industrial Test Probes
Very sharp, extra-long 19 mm (.750") stainless steel tip. For reaching deep test points or recessed components; will pierce insulation. 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010-1), 10A rating. One red, one black. Compatible with all test leads having standard, 4mm (.16"), diameter banana plugs, with or without 8 mm (.315") safety shrouds. UL 1244 Listed.



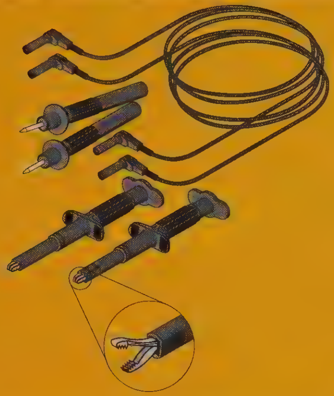
TP80 Electronic Test Probes
Designed for electronic probing of high density components or boards. IC insulator cap prevents shorting of adjacent IC legs. Probe has tapered 4 mm (.157") steel tip. 1000V, 10A rating. One red, one black.

Compatibility Guide: Probes & Clips with Test Leads

Probes & Clips	TL20 Kit	TL22 &TL24 Leads	TL0A & TL75 Leads	Y8132 Leads	Y8134 Kit
TP20	◊	●	●	●	●
TP80	●	●		●	●
AC20	◊	●		●	●
AC70A			●	●	●
AC75	●	●		●	◊
AC80	●	●		●	●
AC83	●	●		●	●
AC85A	●	●		●	●
AC89	●	●		●	●

● Compatible and recommended
◊ Included with TL20 Kit or Y8134 Kit.

TL20 Industrial Test Lead Kit



TL20 Industrial Test Lead Set
Recommended for Electrical/HVAC applications. Set consists of silicone-insulated TL22 Flexible Test Leads (one red and one black), stainless-steel TP20 Industrial Test Probes (one red, one black), and AC20 Industrial Alligator Clips (one red, one black). 1000V (Heavy Industrial Rating, Overvoltage Category III per IEC 1010), 10A rating. Shrouded right-angle connectors. UL 1244 Listed.

Traditional Test Lead Sets

Y8132 Detachable Probe Test Lead Set

Test leads have straight, shrouded banana plugs on both ends. Detachable probes with standard metal pin tips and finger guards. PVC-insulated, (48") 1.2m, 2000V, 10A rating. One red, one black. UL 1244 Listed.

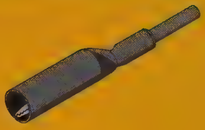
Y8131 Detachable Probe Test Lead Set (not shown)
Identical to the Y8132, but test lead set has exposed banana plugs on one end.

Y8134 Shrouded Test Lead Kit

Kit includes Y8132 test lead set in a C75 case with the following interchangeable tips: 2 AC75 alligator clips, 2 spade lugs, 1 retractable hook tip. Straight, safety-shrouded banana plugs. Y8134 test leads are UL 1244 listed.

Y8133 Test Lead Kit (not shown)
Identical to the Y8134, but test lead set has exposed banana plugs on one end.

Recommended Clips for use with Y8131-Y8134 and TL24 Test Lead Sets

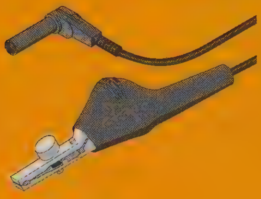


AC75 Banana Jack-Alligator Clips
Insulated alligator clips with banana jacks. Standard 8 mm (.313") jaw opening. Included with test lead sets Y8133 and Y8134, and compatible with test leads Y8131, Y8132, and TL24. 1000V, 10A rating. Two red, two black.

All accessories have a full 1-year warranty.

Specific Applications

TL26 5-Way Multipoint Clip Assembly Set

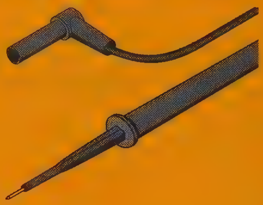


Industry-standard for Telecom and Automotive applications. 5 ways to connect: 1) U-shaped noise for blade-shaped terminals: 2) Notched jaw for gripping screw heads, bare wire or terminals: 3) Serrated teeth for gripping threaded or wire-wrapped terminals: 4) Cluster of sharp needles for piercing small gauge (#22 -#28 AWG) wires: 5) Large piercing needle for penetrating larger gauge wires. 60" (1.5m), silicone-insulated leads, useable from -80°C to + 150°C (-112°F to + 302°F). Rated for 250V, 10A. One red, one black.

TL28 2-Way Clip Assembly Set

Solid, spring-loaded copper clips with a wide. 50" (12.7) mm) jaw opening and serrated teeth. Large piercing needle for penetrating larger gauge wires. 60" (1.5m), silicone-insulated leads, useable from -80°C to + 150°C (-112°F to + 302°F). Rated for 250V, 10A. One red, one black.

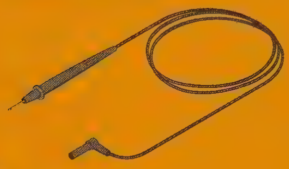
Y8140A Slim-Flex Probe Assembly



Factory Mutual Approved. Compatible with all Fluke DMMs/GMMs. Slim, retractable, insulated needle-point test leads adjust to desired length by extending probe up to 2.5" (63.5 mm) Needle [points easily pierce varnish and thin insulation. 48" (1.2m) with PVC insulation. Right-angle, shrouded banana plugs. 1000V, 2A rating. One red, one black.

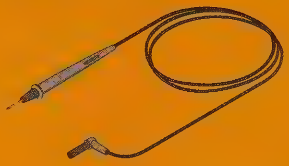
Replacement Probe Assemblies

TL75 Hard Point™ Test Lead Set (Replaces TL70)



Replacement test leads for all Fluke Handheld DMMs except 8060A and 8062A. Comfort-grip probe with PVC-insulated leads. Super strong tips and integral strain relief provide extended service life. Safety-shrouded, right-angled inputs. For general purpose measurements; use TL70A for µV measurements. 48" (1.2m). 1500V, 10A. UL 3111 Listed.

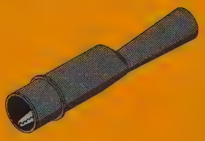
TL70A Right-Angle Test Lead Set (Replaces TL70)



Replacement test leads for 8060A, 8062A. Comfort-grip probe with PVC-insulated test leads, and integral strain relief. Recommended for uV measurements. Safety-shrouded, right-angle inputs. 1.2m (48"). 1500V, 10A. UL 3111 Listed.

Recommended Clips for TL75 and TL70A

AC70A Alligator Clips



Gold-plated, beryllium-copper, spring contacts accept probe tips from 1.93 mm to 2.13 mm (.076" to .084"). Standard jaw opening of 8 mm (.313"). 1000V, 10A rating. One red, one black.

All accessories have a full 1-year warranty.

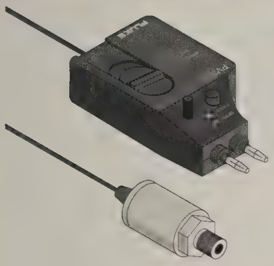
Compatibility Guide:
Test Leads with Meters

Model No.	10 Series	20/70 Series	25/27	Model 76	80 Series	30/32/36	860 GMM
TL20[1,3]	●	●	●	●	●	●	◊
TL26	●	●	●	●	●	●	●
T128	●	●	●	●	●	●	●
TL70A[1]	●	●	●	●	●	●	◊
TL75[1]	◊	◊	◊	◊	◊	◊	
Y8132[1]	●	●	●	●	●	●	●
Y8134	●	●	●	●	●	●	●
Y8140A[2]	●	●	●	●	●	●	●

● Compatible and recommended
◊ Comes with DMM or GMM (Standard with 867, optional with 863 and 865)

[1] UL 3111 Listed
[2] Factory Mutual Approved
[3] IEC 1010-1

Pressure Module



PV350 Digital Pressure Vacuum Module

The Fluke PV350 sets the standard for pressure/vacuum troubleshooting, turning your digital multimeter into a complete measuring system. Designed as a compact module that plugs into standard diameter banana jacks on the front of any DMM, the PV350 provides high accuracy, high resolution digital pressure and vacuum measurements.

- Compatible with all Fluke and most popular DMMs
- Digital pressure and vacuum measurements in a single module
- Transducer sealed in 316 stainless steel compatible with variety of liquids and gases
- Measures vacuum to 76 cm Hg (29.9" Hg)
- Displays results in English (psig or Hg) or metric (kPa or cm Hg) units
- Records Min/Max values when used with Fluke 12, 27, or 80 Series

Specifications

Range	Basic Accuracy*
Pressure:	
0.5 to +350 psig	±1% of reading ±3 psig
(3.447 to +2413 kPa)	(±1% of reading ±2.1 kPa)
350 psig to 500 psig	±5% of reading ±1.0 psig typ.
(2413 to 3447 kPa)	(±5% of reading ±7.0 kPa)
Vacuum:	
0 to 29.9" Hg	±1% of reading ±.5" Hg
(0 to 76 cm Hg)	(±1% of reading ±1.3 cm Hg)

* Accuracy specifications require the module be zeroed prior to taking the reading. Accuracy specifications apply over entire specified range and in all units.

Accessories and Ordering Information

Included Accessories

The PV350 digital pressure/vacuum module comes with a 1/4" male pipe thread connector and a 1/4" female pipe thread to 1/4" flare male adapter; 8-foot, 1/4" diameter PVC cable; 9V battery (installed); and operator's manual.

Ordering Information

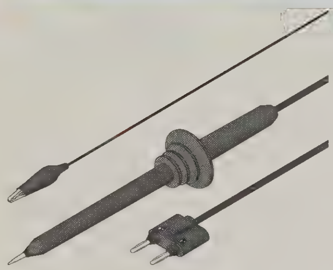
PV350 Pressure/Vacuum Module
C25 Soft Carrying Case

High Frequency Probe

83RF High Frequency Probe

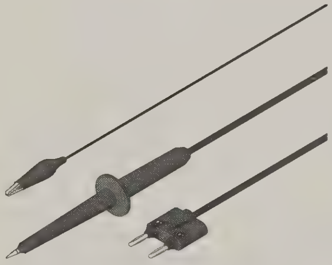
(Factory Mutual Approved) Converts any 10 MΩ DMM into a high frequency, 100 kHz to 100 MHz, AC voltmeter. AC to DC conversion ratio is 1:1 over a range of 0.25 to 30V rms. The probe's DC output is calibrated to the rms value of a sinewave input. Ratio Accuracy: ±1 dB above 1V. Frequency Response: ±1 dB, 100 kHz to 100 MHz. Maximum Input Voltage: 30V rms, 200V DC.

High Voltage Probes



80K-40 High Voltage Probe*

(Factory Mutual Approved) Measures up to 40 kV DC or 28 kV rms AC. Division ratio is 1000 to 1. Has 1000 MΩ input resistance. For use with an instrument having 10 MΩ input impedance. DC accuracy: 20 kV to 35 kV, ±1% at 20°C to 30°C; add 1% at 10°C to <20°C and >30°C to 45°C. 0 kV to <20 kV and >35 kV to 40 kV: ±2%. AC Accuracy: 60 Hz, 5%.



80K-6 High Voltage Probe*

(Factory Mutual Approved and UL 1244 Listed) Extends measurement capabilities to 6000V DC or peak AC. Division ratio is 1000 to 1. For use with an instrument having 10 MΩ input impedance. Accuracy: ±1.0% DC; ±1% to 500 Hz AC, ±2% 500 Hz to 1 kHz AC. Input Resistance: 75 MΩ, nominal.

All accessories have a full 1-year warranty.

***WARNING!**

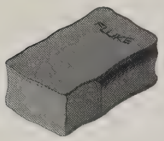
To avoid damage or electric shock,use high voltage probes under dry conditions (no condensation) in low energy applications, such as CRT supplies.

Cases & Holsters

Soft Cases

C12A Series 10 Soft Case

Soft sided, zippered, vinyl carrying case for all Series 10 meters. Inside pockets are designed to carry a meter, manual, and test leads. Convenient 76 mm (3") belt loop accommodates tool belts.

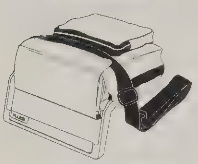


C25 Soft Case

Padded vinyl soft case with tough exterior, zipper and one inside pocket for test leads or small accessories. For Fluke 25 or 27 or other Fluke handheld meters including Fluke 21, 23, 29, 50 or 70 Series meters in C70 Holster; or 80 Series meters in C81 Holster. Also for use with PV350. Size: 218.4 mm L x 124.5 mm W x 69.8 mm D (8.3" L x 4.9" W x 2.75" D).

C31 Soft Case

For Model 30 Clamp Meter. Vinyl soft case with one interior pocket.

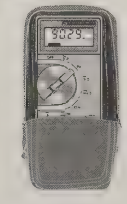


C40 Soft Case

A soft vinyl case with a shoulder strap, designed for the storage and transport of a Fluke 45. Test lead and other compact accessory storage in removable upper pouch.

C50 Compact Soft Case

Vinyl case with belt loop. Holds meter, manual, and leads ready for testing. For 21, 23, 29, 50 and 70 Series without holster. (Use C25 or C90 when using meter with holster.)

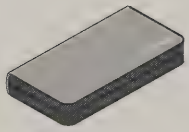


C90 Soft Case

Fabric-backed vinyl case with zippered enclosure. One internal pocket holds test leads or small accessories. Convenient 76 mm (3") belt loop accommodates tool belts. For use with 8060A and 8062A. Also holds Fluke 21, 23, 29, 50 and 70 Series meters in a C70 holster. Smaller than a C25.

C95 Soft Carrying Case (not shown)

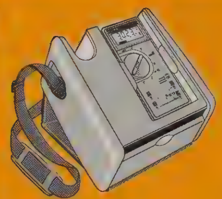
A soft zippered vinyl plastic case designed for storing and transporting the ScopeMeter test tool. Two separate storage compartments are provided for test leads, probes, power adapter and other accessories. An integrated tilt stand is provided for optimum viewing angle.



C75 Test Lead Case

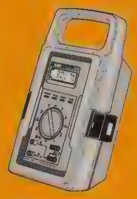
Vinyl carrying case with two inside pockets. Designed to carry test leads, test probes or clips. Will not accommodate large probes or AC83 Test Clips. Size: 190.5 mm x 108 mm x 31.8 mm (7.25" x 4.25" x 1.25").

Hard Cases



C17Y Durable Case

Rugged hard case with durable vinyl cover which doubles as a tilt stand. Holds meters in transit, with right-angle test leads connected. Meter can be used while in case. Large internal compartments hold current clamps, test leads, and other accessories; slip pocket holds quick reference card. High-visibility yellow with grey cover. For Series 10 with holster, 70 Series II, 20 Series II and 51/52 without holster.



C20 Hard Case

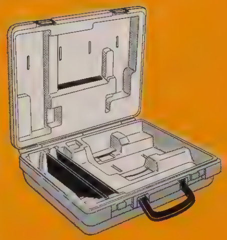
Heavy duty case made of shock-resistant polypropylene. Top cover snaps on back to serve as tilt stand. Carrying handle and storage compartment for test leads and small accessories are part of case. For Fluke 25 and 27, also holds 80 Series meters in holsters.

C28Y Durable Case (not shown)

Same as C17Y, but designed for 80 Series meters with holsters and the Fluke 25/27.

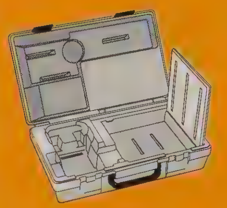
C97 Hard Carrying Case (not shown)

A heavy-duty case made of shock-resistant polypropylene, used for storing and transporting the ScopeMeter test tool. Storage compartments for test leads, probes, instruction manual and other small accessories are included.



C100 Universal Carrying Case

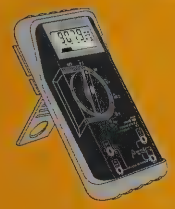
Tough polypropylene case provides protection against rough handling and bad weather. For any Fluke handheld DMM or Fluke 50 Series thermometers and most Fluke DMM accessories.



C800 Hard Storage Case

Smaller than C100. Double seal latches resist popping open if case is dropped. Includes compartments for holding accessories and manuals. Detachable lid for easy storage. Designed for 80 Series meters in holsters. 70 Series and 21, 23, 29, 70 meters in holsters fit loosely.

Holsters



C70Y/C70G Series II Holster (Yellow, Grey)

For all 70 and 50 Series and Models 21, 23, 29 meters. Easy-to-clean, vinyl snap-on holster absorbs shocks and protects meter. Unique Flex-Stand™ allows meter to hang, lean or stand for best viewing position. Lead/probe storage on back. Choice of high-visibility yellow (C70Y) or grey (C70G). (Replaces C70)

C81Y/C81G Holster (Yellow, Grey)

For 80 Series DMMs. Easy-to-clean, vinyl snap-on holster absorbs shocks and protects meter. Lead and probe storage on back. Unique Flex-Stand™ allows meter to hang, lean or stand in best viewing position. Yellow version (C81Y) is included with multimeter. Grey version (C81G) is optional.

C10 Series 10 Holster (Yellow)

Snap-on holster for all Series 10 meters. Absorbs shocks and protects the meter from rough handling. Built-in stand and hanger-loop allow meter positioning. Molded hanger-loop can also function as stationary probe holder, allowing one-handed operation and contact of test points.

C30 Replacement Holster

Heavy duty, fabric holster protects meter display, and has a convenient belt clip for hands-free carrying. Rugged Velcro closure makes it easy to access meter even when wearing gloves. For Fluke 31 and 33 Clamp Meters.

PM 9083/001 Holster (not shown)

For ScopeMeter test tool. The holster is made from durable, semi-flexible plastic, and snaps around the ScopeMeter, protecting it from rough handling. The holster can store the quick operating guide, and allows full position capabilities of the ScopeMeter tilt stand.

Toolcase Carrying Cases

C41s Soft Case

Tough vinyl case for Fluke 40 series. Separate internal compartments for accessories. High visibility yellow side panels. Ability to use meter while in case.

C789 Soft Carrying Case

The C789 protects the Fluke Graphical™ Multimeter (860 Series) in its center pocket; convenient access to all test lead jacks allows the GMM to be used in the case. Storage for a backup battery is in one side pocket; access to the RS-232 pocket is through the other side pocket.

C781 Compact Soft Case

The C781 is a tough nylon case for 860 and 700 Series instruments. It includes a detachable, front pouch that can be used for leads, patch cords, adapters, spare fuses and other accessories. A sturdy belt loop makes the case and its contents easy to carry onto the job.

Accessories Compatibility Guide

Accessories Compatibility Guide

● **Optional and Recommended**
◊ **Included**

Temperature Accessories	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
80T-IR Infrared Temperature Probe		1	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			
80TK-Thermocouple Module		1	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			
80T-150U Universal Temperature Probe		1	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			
80PK-1 Universal Probe																			2/3	4	
80PK-2A Immersion Probe																			●	●	
80PK-3A Surface Probe																			●	●	
80PK-4A Air Probe																			●	●	
80PK-5A Piercing Probe																			●	●	
80PK-6A Exposed Probe																			●	●	
80PK-7 Industrial Surface Probe																			●	●	
80PK-8 Pipe Clamp Temperature Probe																			●	●	
80PK-IR Infrared Temperature Probe																			●	●	
80CK-M Male Mini-Connectors																			●	●	
80CJ-M Male Mini-Connectors																			●	N/A	

1. 12B and 10 series DMMs will show one degree resolution, Degree C or F; all others at least 0.1 degree resolution
2. One each included with model 51
3. Two each included with model 52
4. One each included with 80TK

Test Leads	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
TL20 Test Lead Set	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●*2		●	●			●*1
TL22 Flexible Test Leads	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
TL24 Flexible Test Leads - Straight	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◊	●	●			
TL26-5 Way Multipoint Test Lead Set	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			●*1
TL28 2-Way Clip Test Lead Set	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			●*1
TL70A Right-Angle Test Lead Set	●	●	●	●	●	●	●	●	●	●	●	●	●	●	◊			◊			●*1
TL75 Hard Point Test Lead Set (TM)	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊	◊			●				◊*1
Y8132 Test Lead Set		●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
Y8134 Test Lead Kit		●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
Y8140A Test Lead Set		●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			

*1. For Fluke 30, 32 and 36 only
*2. Included with Fluke 867

Test Lead Accessories	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
AC 20 Industrial Alligator Clips																◊	●				
AC 80 Industrial Hook Style Clips																	●				
TP 20 Industrial Test Probes																◊	●				

Accessories Compatibility Guide

Accessories Compatibility Guide

● **Optional and Recommended**
◊ **Included**

Current Clamps	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
Y8101A AC Current Clamp					●	2	●	●	●	2	●	●	●	●	●			●			
80i-400 AC Current Clamp					●	3	●	●	●	3	●	●	●	●	●			●			
80i-410 AC/DC Current Clamp		5	5	5	5	7	5	5	5	●	●	6	●	7	8						
80i-600A AC Current Clamp					●	4	●	●	●	4	●	●	●	●	●			●			
80i-110s Clamp-on AC/DC Current Clamp for Scopes																●	●				
80i-500s Clamp-on AC Current Clamp for Scopes																◊	●				
80i-1000s Clamp-on AC Current Clamp for Scopes																●	●				
80i-1010 AC/DC Current Clamp		5	5	5	5	7	5	5	5	●	●	6	●	7	8						

2. Y8101A notes – 1 amp resolution above 40 amps with 76, 29 and 79
3. 80i-400 notes – 1 amp resolution above 40 amps with 76, 29 and 79
4. 80i-600A notes – 1 amp resolution above 40 amps with 76, 29 and 79
5. 1 amp resolution
6. 10 amp minimum AC specified accuracy
7. 20 amp minimum AC specified accuracy
8. Minimum specified accuracy is 30A for true-rms AC current measurements. When doing average sensing measurements, low limit doesn't apply.

Specialty Accessories	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
80K-6 High Voltage Probe		1	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
80K-40 High Voltage Probe		1	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
83RF High Frequency Probe		●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
85RF High Frequency Probe		●	●	●	●	●	●	●	●	●	●	●	●	●	●			●			
PV350 Pressure Vacuum Module		2	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●			
Fiber Optic Meter FOM			●	●	●	●	●	●	●	●	●	●	●	●	●						
Video																					

1. 80K-6, 80K-40 notes – 1 volt resolution DC only with Series 10.
2. PV350 notes – 1 psig/ in Hg resolution

Cases & Holsters	7-00 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/ 79	25/ 27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/ 52	80TK	30/ 31/32 33/36
C10 Holster	●	●																			
C12A Soft Case	●	●																			
C17Y Durable Case		1	●	●	●	●	●	●	●	●									●		
C20 Hard Case											●										
C25 Soft Case			2	2	2	●	2	2	●	●	●	2	●	●					2		
C28Y Durable Case											●		●	●							
C30 Replacement Holster																					5
C31 Soft Case																					6
C40 Soft Case																		●			
C41S Soft Case																●					
C50 Compact Soft Case			●	●	●	●	●	●	●	●									●		
C70G Holster Grey			●	●	●	●	●	●	●	●									●		
C70Y Holster Yellow			●	●	●	◊	◊	●	◊	◊									●		
C81G Holster Grey													●	●							

1. The C17Y Durable Case will hold a Series 10 meter in a C10 Holster.
2. The C25 Soft Case will hold an 8060A/8062A or 51/52, but the fit will be loose.
3. The C800 Hard Storage Case works with a variety of handheld meters, but the fit will be loose.
4. Accommodates DMM with Holster.
5. For Fluke 31 and 33.
6. For Fluke 30 and 32.
7. Loose fit.

Accessories Compatibility Guide

Accessories Compatibility Guide

● **Optional and Recommended**
◊ **Included**

Cases & Holsters (continued)	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/79	25/27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/52	80TK	30/ 31/32 33/36
C81Y Holster Yellow													◊	◊							
C90 Soft Case			●	●	●	●	●	●	●	●		●	●	●					4		
C100 Ruggedized Hard Case			●	●	●	●	●	●	●	●	●	●	●	●					●		
C800 Hard Storage Case			3	3	3	3	3	3	3	3		3	●	●					3		
PM 9088/001 or C95 - Soft carrying case																	●				
PM 9089/001 or C97 - Hard carrying case																	●				
PM 9083/001 Protective Holster Yellow																	◊				
C781 Soft Case															●						
C789 Carrying Case	7	7													●						7

1. The C17Y Durable Case will hold a Series 10 meter in a C10 Holster.
2. The C25 Soft Case will hold an 8060A/8062A or 51/52, but the fit will be loose.
3. The C800 Hard Storage Case works with a variety of handheld meters, but the fit will be loose.
4. Accommodates DMM with Holster.
5. For Fluke 31 and 33.
6. For Fluke 30 and 32.
7. Loose fit.

ScopeMeter Probes & Probe Accessories	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/79	25/27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/52	80TK	30/ 31/32 33/36
PM 8918/101 - 1:1 1.5m probe																	●				
PM 8918/202 - 10:1 2.5m probe set																	●				
PM 8918/301 - 10:1 2.5m low pass filter probe																	●				
PM 9084/001 - Probe industrial alligator clips																	●				
PM 9085/001 - Probe tip hook style test clips																	●				
PM 9090/001 - Probe pin grabber clips																	●				
PM 9094/001 - Probe accessory set																	◊				

Cables & Adapters	7-300 7-600	10/11 12/12B	70	73	75	76	77	21	23	29/79	25/27	8060A/ 8062A	83/85	87	860 SERIES	39/41B	90 SERIES B	45	51/52	80TK	30/ 31/32 33/36
PM 9080/001 - Optically isolated RS232 interface adapter															●	◊*	●				
PM 9082/001 - Dual banana jack to male BNC adapters																	●				
PM 9091/001 - 1.5m, 50 Ohm coaxial BNC cables																	●				
PM 9092/001 - 0.5m, 50 Ohm coaxial BNC cables																	●				
PM 9093/001 - T-connector																	●				
PM 9095/001 - Single banana jack to male BNC adapters																	●				

Glossary of DMM Features

(Refer to meter selection guide: not all features are available in all models.)

AC frequency response

The frequency range over which AC voltage measurements are accurate. Not to be confused with measurement of frequency.

Accuracy

How closely the meter's displayed measurement is to the actual value of the signal being measured. All Fluke meters specify accuracy as a percentage of *reading* (plus number of least significant digits), which is more accurate than percentage of *scale,* in particular at low-scale readings. See auto-ranging.

Analog Bar Graph

A screen display for fast-changing or unstable signals.

Auto/manual ranging

The meter automatically selects the range with the best accuracy and resolution for the job.

Automatic Touch Hold®

Touch Hold® captures the measurement, beeps and locks it on the digital display for later viewing. It automatically updates with each new measurement. Touch Hold allows you to concentrate on test probe placement, thus reducing the risk of accidental circuit damage or electrical shock.

Average-sensing meters

Average-sensing meters accurately measure sinusoidal waveforms, but cannot accurately measure distorted waveforms due to harmonics caused by today's non-linear loads. Their readings may be 30% to 50% low.

Conductance

Conductance is the inverse of resistance and is measured in nanosiemens. A meter with a .01 nS resolution effectively extends the resistance measurement range to 100,000 megohms. This function is typically used for very small leakage measurements in diodes, transistors, connectors, printed circuit boards or capacitors.

Continuity Beeper

No need to watch the display when checking continuity, just listen for the beep. Speeds up troubleshooting.

Continuity Capture™

Locates hard-to-detect intermittent open and short circuits as brief as 250 µs. These faults are often the most difficult to troubleshoot. A symbolic display shows whether the fault was an open-to-short or short-to-open transition.

Crest Factor

The ratio of the peak value to the RMS value of a wave. The higher a meter's crest factor, the wider the range of waveforms it can measure. In an ideal sine wave, the CF is 1.414. CF other than 1.414 indicates the presence of harmonics.

dB readout

Decibels (dB) express the ratio between two quantities. Decibels are typically used to measure the gain or loss of amplifiers, filters or attenuators in telecommunications or audio applications. Can be used with the relative function to provide Rel dB measurements.

Diode test

Properly working diodes should display a voltage drop of 0.6 to 0.7V in one direction (forward bias) and indicate an open circuit in the other (reverse bias).

Display Count

The maximum numerals and digits a meter can display. For example a 4000 count max meter can display from 0-3999.

Duty Cycle

Measures either the time a pulse signal is on (high) or off (low), and is expressed as a percentage of the total time for one cycle. Many industrial control systems are pulse-width modulated and duty cycle measurements provide a quick check on their performance.

Fused 10A Range

Meters without fuse protection in the current inputs should not be used on high energy electrical circuits.

Harmonics

Harmonic currents are generated by electronic devices (referred to as non-linear loads) which draw current in short pulses and *not* as a smooth sine wave. Harmonic currents are whole-number multiples of the fundamental (normally 50 or 60 Hz) current. Harmonics can cause over-heating of transformers, neutral conductors and other distribution system components. True-rms meters are required to measure the effects of harmonics

k

Kilo. k = x 1000

kΩ (kHz)

Kil-ohms (kilohertz). Kilo stands for thousand. 1 KΩ = 1000Ω.

Input alert

Provides an audible warning if the test leads are in the current input jacks, but the function switch is not in Amps. Input alert helps prevent the nuisance of blowing fuses.

Lo-Ohms Zero Calibration

A 40 ohm range with Fluke's proprietary Zero-Calibration technique — which compensates for test leads resistance — offers .01 Ω resolution for accurately measuring low resistance circuits. Measure contact resistance of starters and breakers, or use it to estimate cable length.

M

Mega. M = x1,000,000

m

Milli. m = 1/1000

MΩ (MHz)

Megohms (Megahertz). Meg stands for one million. 1MΩ = 1,000,000Ω.

mA

Milliamps. 1000mA =1A (or 1mA = .001A).

mV

Millivolts. 1000mV = 1V (or 1mV = .001V).

Min/Max

The meter captures and stores the highest and lowest measurements for later display. This mode may be used with any of the meter's measurement functions (volts, amps, ohms, frequency, kW or temperature with appropriate accessories). This powerful feature gives you the ability to track intermittent signals, capture momentary abnormalities, or let the meter "babysit", taking readings when you can't watch the meter.

Min/Max Alert

Gives an audible tone for readings above previous maximums or below previous minimums.

Min/Max Instantaneous Peak

A high-speed, 1 millisecond response time captures Min/Max readings of a waveform's peak values. Can be used for crest factor calculations or to capture transients and momentary power surges (with a current probe accessory).

n

Nano. n = 1/1,000,000,000

Offset/Relative Reference

The Relative Mode remembers a reading and shows the change (difference or offset) between it and any readings that follow. You can use it to show measurements above or below a certain level, or to zero out the resistance in test leads.

Resolution

The smallest increment in value that can be measured and displayed. Max resolution refers to resolution at the lowest range

Sleep mode

Preserves battery life by automatically switching the unit off if not in use for ten to thirty minutes, depending on the model, unless recording in Min/Max mode or disabled.

Smoothing™

Assures stable digital readings of variable signals by recording and displaying a running average of the readings. You can still see fast-changing signals by viewing the simultaneous analog display.

True-rms meters

A digital multimeter or clamp meter that accurately measures the effects of harmonics caused by today's non-linear loads. True-rms meters are accurate for both non-sinusoidal waveforms as well as sine waves. True-rms refers to the "root-mean-square" of a current or voltage wave shape, which is the equivalent heating value of the waveform. See Harmonics.

µ

Micro. µ = 1/1,000,000

V-Chek™ Automatic Selection

The V-Check function, when enabled, allows quick voltage checks while the switch is in the ohms/continuity position. If a dc or ac voltage greater than 4.5V is present (intentional or not), the meter will safely and automatically display the voltage. Input impedance is lowered from 10MΩ to about 2kΩ, so the user will know the voltage is from a hard connection and not due to leakage from nearby capacitively coupled conductors.

Fuse and Warranty Information

Fuse Replacement Information

Model	Fuse Requirements
21/23/75/77	P/N 871173: 630 mA 250V fuse in series with either P/N 71202: 3A 600V fuse or fusible resistor, R20 - DO NOT SUBSTITUTE FOR R20 P/N 892583: 15A 600V fuse. Also recommended replacement for units with a fused 10A input using a 20A fuse.
76/29/79 and 83/85/87 No CAT rating	P/N 871207: 1A 600V fuse; P/N 892583: 15A 600V fuse.
25/27	P/N 871173: 630 mA 250V fuse in series with P/N 871202: 3A 600V fuse. For units with 10A input using 20A fuse, use P/N 892583: 15A 600V fuse.
45	PN 871181, 500 mA, 250V fuse and PN 892583, 15A, 600V fuse.
73	PN 892583, 15A, 600V fuse.
863/865/867 CAT III rated 83/85/87	PN943121, 440 mA, 1000V fuse and PN943118, 11A, 1000V fuse.

Required Fuse Replacements

Fluke P/N	871181	871173	871207	871178	871215	871202	892583
Bussman	GDA.500	GDA.630	BBS-1	AGX-2	BBS-2	BBS-3	KTK-15
Littelfuse	216.500	216.630	–	361002	–	–	KLK-15
For Fluke 860 Series use only Fluke fuses							

Accessories and Ordering Information

Replacement fuses for Fluke DMMs are available from your distributor in 440 mA, 500 mA, 630 mA, 1A, 2A, 3A, 11A and 15A values.

All accessories have a full 1 year warranty

Product Limited Warranty

Each Fluke product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is listed in the ordering information section of the product specification and begins on the date of shipment. This warranty extends only to the original buyer or end-user customer of a Fluke authorized reseller, and does not apply to fuses, disposable batteries or to any product which, in Fluke's opinion, has been misused, altered, neglected or damaged by accident or abnormal conditions of operation or handling. Fluke warrants that software will operate substantially in accordance with its functional specifications for 90 days and that it has been properly recorded on non-defective media. Fluke does not warrant that software will be error free or operate without interruption.

Lifetime Limited Warranty

Each Fluke 20, 70 and 80 Series DMM purchased after October 1, 1996 will be free from defects in material and workmanship for its lifetime. This warranty does not cover fuses, disposable batteries and damage from accident, neglect, contamination, misuse or abnormal conditions of operation or handling, including overvoltage failures caused by use outside the DMM's specified rating, or normal wear and tear of mechanical components. This warranty covers the original purchaser only and is not transferable. For ten years from the date of purchase, this warranty also covers the LCD. Thereafter, for the lifetime of the DMM, Fluke will replace the LCD for a fee based on then current component acquisition costs.

To establish original ownership and prove date of purchase, please complete and return the registration card accompanying the product.

Service

Fluke will, at its option, repair at no charge, replace or refund the purchase price of a defective product purchased through a Fluke authorized sales outlet and at the applicable international price. Fluke reserves the right to charge for importation costs of repair/replacement parts if product purchased in one country is sent for repair elsewhere.

Send defective product with a description of the problem to the nearest Fluke Authorized Service Center, postage and insurance prepaid. Fluke will pay return transportation for product repaired or replaced in-warranty. Before making any non-warranty repair, Fluke will estimate cost and obtain authorization, then invoice you for repair and return transportation.

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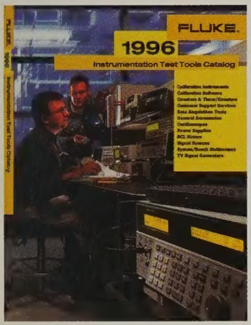

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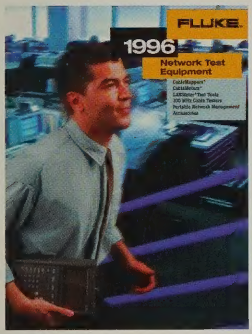

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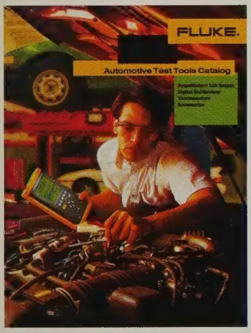

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